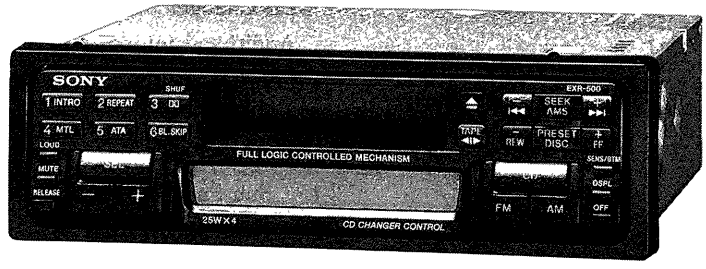
EXR-500

SERVICE MANUAL

US Model



Model Name Using Similar Mechanism	EXR-400
Tape Transport Mechanism Type	MG-50EX2-39

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
8 watts per channel minimum continuous average power into 4 ohms, 4 channels driven from 20 Hz to 20 kHz with no more than 1% total harmonic distortion.

Other Specifications

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 18,000 Hz
Signal-to-noise ratio	

Cassette type	Dolby B NR	Dolby NR off
TYPE II, IV	67 dB	61 dB
TYPE I	64 dB	58 dB

Tuner section

FM

Tuning range	87.5 – 107.9 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5 % (stereo), 0.3 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

AM

Tuning range	530 – 1,710 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	30 µV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	25 W × 4 (at 4 ohms)

—Continued on next page—

FM/AM CASSETTE CAR STEREO

SONY®

General

Outputs	Line out (1) Power antenna relay control lead Power amplifier control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 188 × 58 × 177 mm (7 1/2 × 2 3/8 × 7 in.) (w/h/d)
Mounting dimension	Approx. 182 × 53 × 155 mm (7 1/4 × 2 1/8 × 6 1/8 in.) (w/h/d)
Mass	Approx. 1.2 kg (2 lb. 10oz.)
Supplied accessories	Parts for installation and connections (1 set) Front panel case (1)

Design and specifications are subject to change without notice.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol ◻◻ are trademarks of Dolby Laboratories Licensing Corporation.

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

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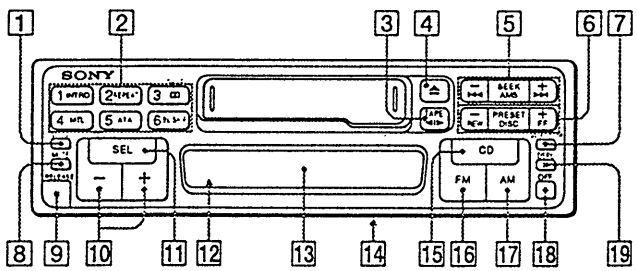
Location of controls



EN

Refer to the pages for further details.

1 LOUD (loudness) button 8

2 During radio reception:
Preset number buttons 7

During tape/CD playback:
① INTRO button 6, 9
② REPEAT button 6, 9
③ SHUF/DD (Dolby B NR) button 6, 9
④ MTL button 6
⑤ ATA (Automatic Tuner Activation) button 6
⑥ BL.SKIP button 6

3 TAPE/◄I► (playback/transport direction change) button 5

4 ≙ (eject) button 5

5 SEEK/AMS button 6, 7, 8

6 PRESET/DISC button 5, 6, 7, 8

7 SENS/BTM (sensitivity adjust/Best tuning memory function) button 7

8 MUTE button 8

9 RELEASE (front panel release) button 4, 10

10 ⊕⊖ (volume/bass/treble/balance/fader control) button 5, 8

11 SEL (control mode select) button 5, 8

12 Reset button (located on the front side of the unit hidden by the front panel)
Press this button when you use this unit for the first time, when you have changed the car battery, or when the buttons of this unit do not function properly.

13 Display window

14 POWER SELECT switch (located on the bottom of the unit)
See "POWER SELECT Switch" in the installation/Connections manual.

15 CD (disc play/CD changer select) button 8

16 FM (radio on/band select) button 7

17 AM (radio on/band select) button 7

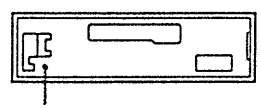
18 OFF button 4, 5

19 DSPL (display mode change/time set) button 5, 6, 8

Getting Started

Resetting the unit

Before operating the unit for the first time or after replacing the car battery, you must reset the unit.
Press the reset button with a pointed object, such as a ball-point pen.



Reset button

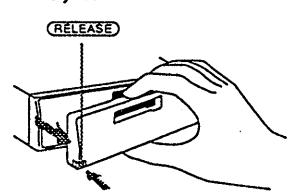
Note
Pressing the reset button will erase all the memorized stations.

EN

Detaching the front panel

The front panel of this unit can be detached in order to prevent the unit from being stolen.

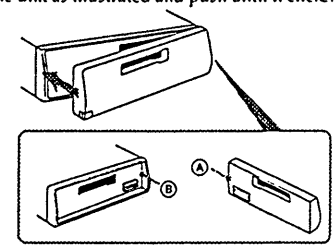
1 Press (OFF).
2 Press (RELEASE) to open up the front panel, and detach the panel by pulling it towards you.



Notes
- *Be sure not to drop the panel when detaching it from the unit.*
- *If you press (RELEASE) to detach the panel while the unit is still turned on, the power will be automatically turned off in order to protect the speakers from being damaged.*

Attaching the front panel

Attach part Ⓐ of the front panel to part Ⓑ of the unit as illustrated and push until it clicks.



Notes
- *Make sure that the front panel is the right way up when attaching it to the unit as it cannot be attached upside down.*
- *Do not press the front panel hard against the unit when attaching it to the unit. It can easily be attached by pressing it lightly against the unit.*
- *When you carry the front panel with you, put it in the supplied front panel case.*
- *Do not press hard or give excessive pressure to the display windows of the front panel.*
- *Do not expose the front panel to direct sunlight, heat sources such as hot air ducts or leave it in a humid place. Never leave it on the dashboard etc. of a car parked in direct sunlight where there may be a considerable rise in temperature inside the car.*

Caution alarm

If you turn the ignition key to the OFF position without removing the front panel, the caution alarm will beep for a few seconds (only when the POWER SELECT switch is set to the Ⓐ position).

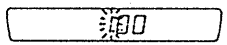
This section is extracted from instruction manual.

Setting the clock

The clock has a 12-hour digital indication.
For example, setting it to 10:08

1 Press (OFF) or (DSPL) during operation.

2 Press (DSPL) for two seconds.



The hour digit blinks.

❶ Set the hour digits.

to go back to go forward

❷ Press (SEL) momentarily.

The minute digit blinks.

❸ Set the minute digits.

to go back to go forward

3 Press (DSPL) momentarily.

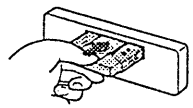
The clock activates.

Note
If the POWER SELECT switch on the bottom of the unit is set to the ⓑ position, the clock cannot be set unless the power is turned on. Set the clock after you have turned on the radio.

Cassette Player

Listening to the tape

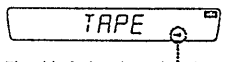
Insert the cassette.



Playback will start automatically.

If the cassette is already inserted, press (TAPE) to start playback.

The side facing up is being played.



The side facing down is being played.

Tip
To change the tape transport direction, press (TAPE) during tape playback.

To	Press
Stop playback	(OFF)
Eject the cassette	⏏

Fast-winding the tape

During playback, press either side of (PRESET/DISC).

Rewind Fast-forward

To start playback during fast-forwarding or rewinding, press (TAPE).

Locating the beginning of the tracks — Automatic Music Sensor (AMS)

You can skip up to nine tracks at one time.

During playback, press either side of (SEEK/AMS) momentarily.

To locate the previous tracks To locate the succeeding the tracks

Note
The AMS function may not work when :
- *the blanks between tracks are shorter than 4 seconds*
- *there are noises*
- *there are long sections of low volume or quiet sections.*

Changing the displayed items

Each time you press (DSPL) momentarily during tape playback, the displayed item changes as follows:

→ Tape playback ⟶ Clock ⟶ Frequency* →

* *While the ATA function is activated.*

Playing the tape in various modes

Searching the desired track — Intro scan

Press (1) during playback.
"INTRO" appears on the display.

The first 10 seconds of all the tracks are played.

When you find the desired track, press again. The unit returns to the normal playback mode.

Playing tracks repeatedly — Repeat play

Press (2) during playback.
"REP" appears on the display.

When the currently played track is over, it will be played again from the beginning.

To cancel this mode, press again.

Playing a tape recorded in the Dolby B NR system

Press the (3) when you want to listen to a tape recorded in the Dolby* B NR system.
"DD" appears on the display.

* *Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.*

Playing a CrO_2 or metal tape

Press (4) when you want to listen to a CrO_2 (TYPE II) or metal (TYPE IV) tape.
"MTL" appears on the display.

To cancel this function, press (4).

Switching to the radio during fast-winding the tape — Automatic Tuner Activation (ATA)

Press (5) during playback.
"ATA" appears on the display.

When fast-forwarding or rewinding with (PRESET/DISC), the tuner will turn on automatically.

Skipping blanks during tape playback — Blank skip

Press (6) during playback.
"BL.SKIP" appears on the display.

Blanks longer than eight seconds will be automatically skipped during tape playback.

Radio

Memorizing stations automatically

— Best Tuning Memory (BTM)

This function selects from the currently received band the stations with the strongest signals and memorizes them in order of their frequency.

PREVENTING ACCIDENTS!
When tuning in during driving, use the automatic tuning and the memory preset search function instead of the manual tuning.

1 Press (FM) or (AM) repeatedly and select the band.
Each time you press (FM) or (AM), the band changes as follows:
(FM): FM1 → FM2 → FM3
(AM): AM1 ⟷ AM2

2 Press (SENS/BTM) for two seconds.

Notes
- *The unit will not store stations with weak band frequencies on the preset number buttons. If there are only a few stations received, some preset number buttons will remain empty.*
- *When there is a preset number indicated on the display window, the unit will store stations on all preset number buttons from the one currently displayed.*

Memorizing only the desired Stations

Up to 6 stations on each band (FM1, FM2, FM3, AM1 and AM2) can be stored on the preset number buttons in order of your choice. Therefore, 18 stations can be memorized on FM.
If you try to store another station on the same preset number button, the previously stored station will be erased.

1 Press (FM) or (AM) repeatedly, and select the band.

2 Press (SEEK/AMS) to search for the station which you wish to store on the preset number button.

3 Press the desired preset number button (① to ⑥) for two seconds until a beep sounds.

The number of the pressed preset number button appears on the display window.

Receiving the memorized stations

1 Press (FM) or (AM) repeatedly, and select the band.

2 Press the preset number button (① to ⑥) momentarily on which the desired station is stored.

Tip
Press either side of (PRESET/DISC) momentarily to receive in order the stations stored in the memory (Preset Search Function).

If FM stereo reception is poor — Monaural mode

Press (SENS/BTM) momentarily until "MONO" lights up on the display.
The sound will improve, but it will become monaural. (The "ST" indication will disappear.)

Changing the displayed items

Each time you press (DSPL), the display item changes as follows:
Frequency ⟷ Clock

If you can't tune in a preset station

Press either side of (SEEK/AMS) momentarily to search for the station (automatic tuning).
The scanning stops when a station is received. Press either side of the button repeatedly until the desired station is received.

Note
If the automatic tuning stops too frequently, press (SENS/BTM) momentarily until "LCL" lights up on the display (local seek mode). Only the stations with relatively strong signals can be tuned in.

Tip
If you know the frequency, press and hold either side of (SEEK/AMS) until the desired station is received (manual tuning).

Other Functions

Adjusting the sound characteristics

1 Select the item you want to adjust by pressing (SEL) repeatedly.
VOL (volume) → BAS (bass) → TRE (treble) → BAL (balance) → FAD (fader)

2 Adjust the selected item by pressing either (+) or (−).

Adjust within three seconds after selecting. (After three seconds the button will again serve as volume control button.)

Muting the sound

Press (MUTE).
The "MUTE" indication flashes.

To restore the previous volume level, press again.

Changing the sound and display settings

Enjoying bass and treble even at Low Volume — Loudness

Bass and treble will be reinforced.

Press (LOUD).
"LOUD" will appear on the display.

To cancel, press again.

Muting the beep tone

Press ⑥ while pressing (SEL).
To obtain the beep tone again, press these buttons once more.

With the Optional Equipment CD Changer

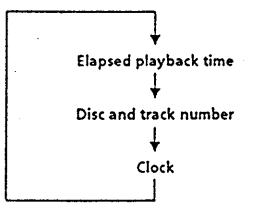
You can control two CD changers.

Playing a CD

Press (CD) and select the changer.
CD playback starts.

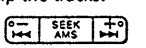
When a CD changer is connected, all the tracks play from the beginning.

Each time you press (DSPL) momentarily during CD playback, the displayed item changes as follows:



Locating a specific track — Automatic Music Sensor (AMS)

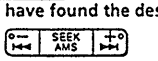
During playback, press either side of (SEEK/AMS) the number of times you wish to skip the tracks.



To locate the previous tracks — To locate the succeeding tracks

Locating a specific point in a track — Manual Search

During playback, press and hold either side of (SEEK/AMS). Release the button when you have found the desired part.



To reverse — To forward

Switching to other discs

During playback, press either side of (PRESET/DISC).

To return to the previous disc — To advance to the next disc

Scanning the tracks

— Intro scan

The first 10 seconds of all the tracks on the currently selected disc are played in order. After the first disc is over, the next disc is played.

Press ① during playback.
"INTRO" appears on the display.

When you find the desired track, press again . The unit returns to the normal CD playback mode.

Playing tracks repeatedly

— Repeat play

To repeat a track

Press ② repeatedly during CD playback until "REP 1" is displayed.

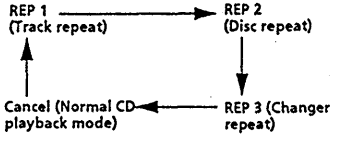
To repeat a disc

Press ② repeatedly during CD playback until "REP 2" is displayed.

To repeat all the discs in the current changer

Press ② repeatedly during CD playback until "REP 3" is displayed.

Each time you press ② the display changes as follows:



Playing tracks in random order — Shuffle play

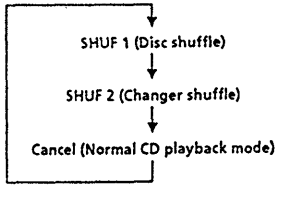
To play the tracks on the current disc in a random order

Press ③ repeatedly during CD playback until "SHUF 1" is displayed.

To play all the tracks in the current changer in a random order

Press ③ repeatedly during CD playback until "SHUF 2" is displayed.

Each time you press ③ the display changes as follows:



If you press ① during shuffle play, the first 10 seconds of all tracks will be played in random order.

Additional Information

Precautions

- If your car was parked in direct sunlight resulting in a considerable rise in temperature inside the car, allow the unit to cool off before switching on.
- If no power is being supplied to the unit, check the connections first. If everything is in order, check the fuse.
- If no sound comes from the speakers of a 2-speaker system, set the fader control to the center position.
- When the tape is played back for a long period, the cassette shell may become warm because of the built-in power amplifier. However, this is not a sign of a malfunction.

If you have any questions or problems concerning your unit that are not covered in this manual, please consult your nearest Sony dealer.

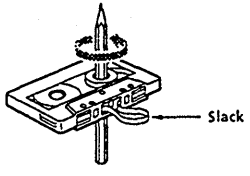
To maintain high quality sound

If you have drink holders near your audio equipment, be careful not to splash juice or other soft drinks onto the car audio. Sugary residues on this unit or cassette tapes may contaminate the playback heads, reduce the sound quality, or prevent sound reproduction altogether.
Cassette cleaning kits cannot remove sugar from the tape heads.

Notes on Cassettes

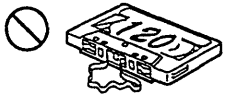
Cassette care

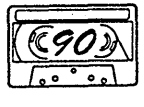
- Do not touch the tape surface of a cassette, as any dirt or dust will contaminate the heads.
- Keep cassettes away from equipment with built-in magnets such as speakers and amplifiers, as erasure or distortion on the recorded tape could occur.
- Do not expose cassettes to direct sunlight, extremely cold temperatures or moisture.
- Slack in the tape may cause the tape to be caught in the machine. Before you insert the tape, use a pencil or similar object to turn the reel and take up any slack.



- Distorted cassettes and loose labels can cause problems when inserting or ejecting tapes. Remove or replace loose labels.

Cassettes longer than 90 minutes
The use of cassettes longer than 90 minutes is not recommended except for long continuous play. The tapes used for these cassettes are very thin and tend to be stretched easily. Frequent playing and stopping of these tapes may cause them to be pulled into the cassette deck mechanism.

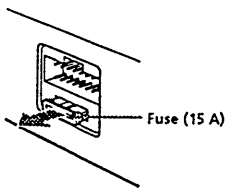




Maintenance

Fuse Replacement

When replacing the fuse, be sure to use one matching the amperage rating stated on the fuse. If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after replacement, there may be an internal malfunction. In such a case, consult your nearest Sony dealer.

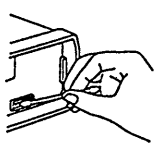


Warning

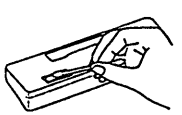
Never use a fuse with an amperage rating exceeding the one supplied with the unit as this could damage the unit.

Cleaning the Connectors

The unit may not function properly if the connectors between the unit and the front panel are not clean. In order to prevent this, open the front panel by pressing (RELEASE), then detach it and clean with a cotton swab dipped in alcohol. Do not apply too much force. Otherwise, the connector may get damaged.



Main unit

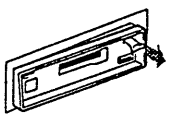


Back of the front panel

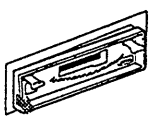
Dismounting the unit

1

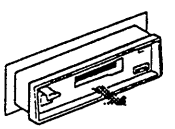
2



3



4



EN

Additional Information

Connections

Caution

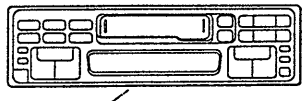
- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the yellow and red power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- Run all ground wires to a common ground point.

If Your Car has No Accessory Position on the Ignition Key Switch — POWER SELECT Switch

The illumination on the front panel is factory-set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear if your car has no accessory position on the ignition key switch. To avoid this battery wear, set the POWER SELECT switch located on the bottom of the unit to the ⓑ position, then press the reset button. The illumination is reset to stay off while the unit is not being played.

Note
The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the ⓑ position.

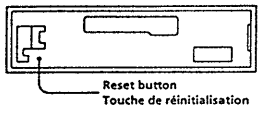
Change the position with a jeweler's screwdriver, etc.
Changer la position avec un tournevis de joaillier ou un objet similaire.



When you change the position of the switch, be sure to press the reset button after the connections are completed.

Reset Button

When the installation and connections are over, be sure to press the reset button with a ball-point pen etc.



Connexions

Précautions

- Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.
- Avant d'effectuer les connexions, débrancher la borne de terre de la batterie du véhicule pour éviter tout court-circuit.
- Brancher les fils d'entrée d'alimentation jaune et rouge seulement après avoir terminé tous les autres branchements.
- Veiller à ne pas raccorder le fil rouge d'entrée d'alimentation à la borne positive de 12 V qui est alimentée quand la clé de contact est sur la position accessoire.
- Rassembler tous les fils de terre en un point de masse commun.

Si l'appareil est utilisé dans une voiture dont la clé de contact n'a pas de position accessoire — Interrupteur POWER SELECT

L'éclairage du panneau avant est réglé en usine de manière à s'allumer même quand l'appareil ne fonctionne pas. Cependant, ce réglage risque d'épuiser la batterie si l'appareil est utilisé dans une voiture dont la clé de contact ne possède pas de position accessoire. Pour éviter d'épuiser la batterie, régler l'interrupteur POWER sur le socle de l'appareil sur la position ⓑ, puis appuyer sur la touche de réinitialisation. L'éclairage est réglé pour rester éteint quand l'appareil n'est pas utilisé.

Remarque
Quand l'interrupteur POWER SELECT est réglé sur la position ⓑ, l'avertisseur du panneau avant ne fonctionne pas.

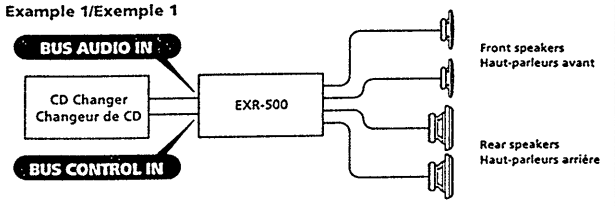
Si vous changez la position de l'interrupteur, n'oubliez pas d'appuyer sur la touche de réinitialisation après avoir terminé tous les raccordements.

Touche de réinitialisation

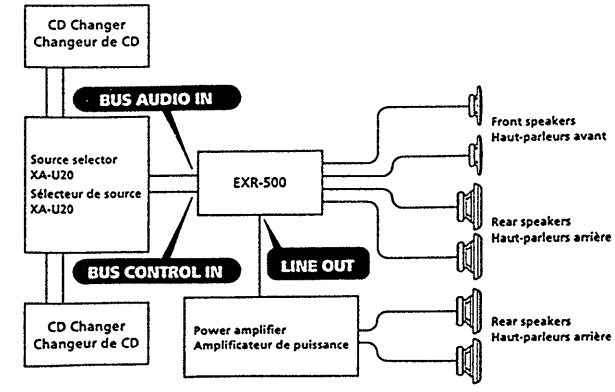
Quand l'installation et les connexions sont terminées, appuyer sur la touche de réinitialisation avec un stylo bille ou un objet pointu.

Connection Diagram — Schémas de connexion

Example 1/Exemple 1

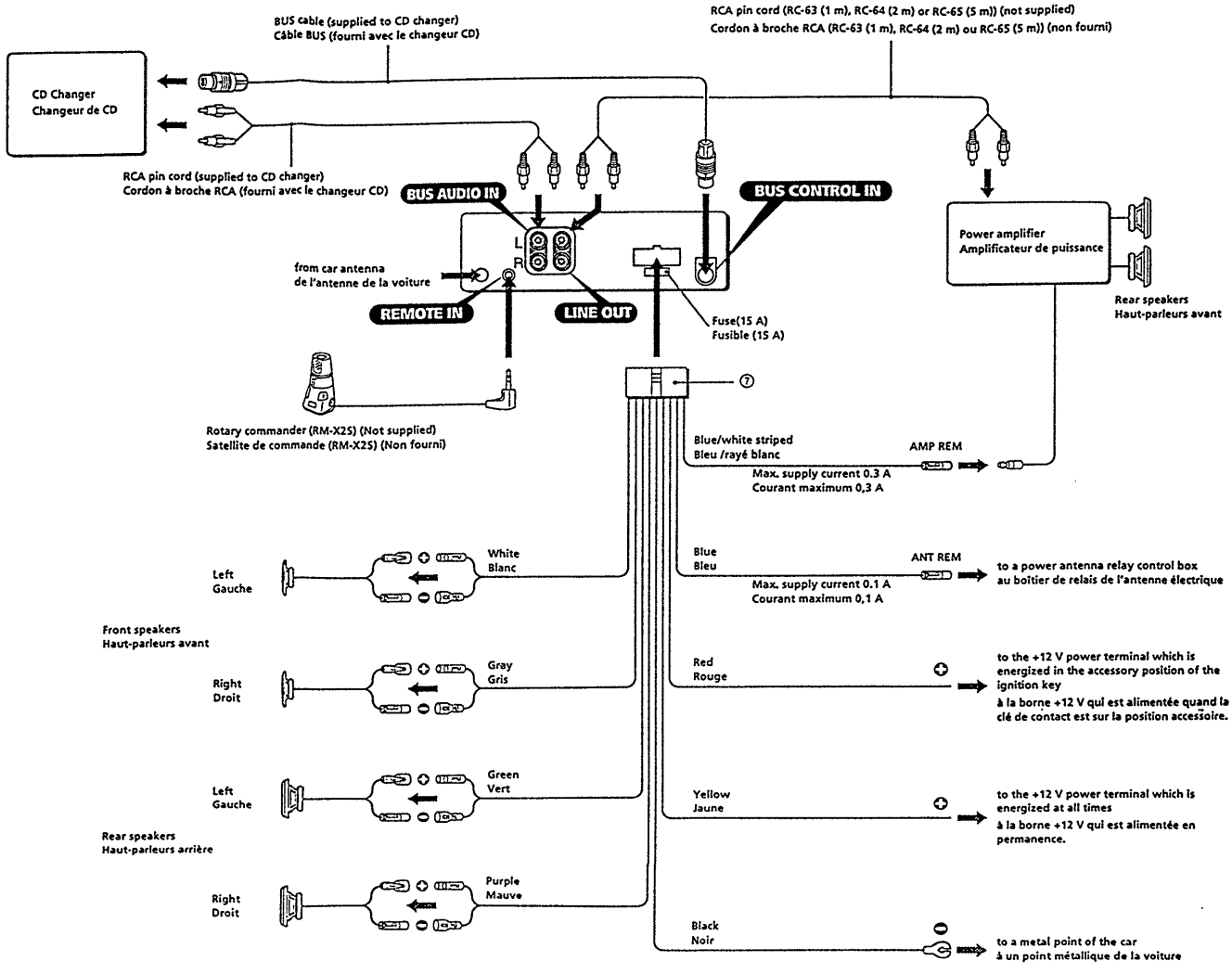


Example 2/Exemple 2



Connections Example

Exemple de montage



Notes on the control leads

- *The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the ATA (Automatic Tuner Activation) function.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection

- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Remarques sur les fils de contrôle

- *Le fil de contrôle de l'antenne électrique (bleu) fournit du courant continu de +12 V quand le tuner est mis sous tension ou quand la fonction ATA (Automatic Tuner Activation) est activée.*
- *Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.*

Connexion pour la conservation de la mémoire

Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

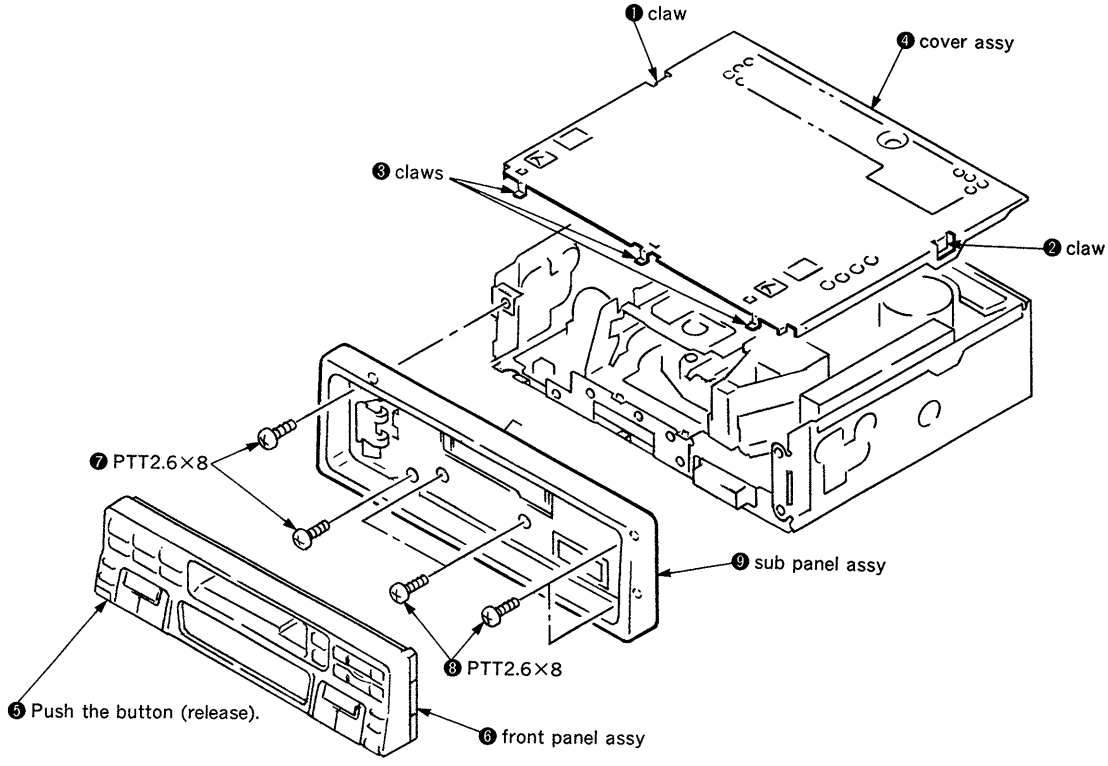
Remarques sur la connexion des haut-parleurs

- *Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas raccorder des haut-parleurs actifs (avec amplificateurs intégrés) aux bornes de haut-parleur de l'appareil sous peine de les endommager. Veiller à raccorder des haut-parleurs passifs à ces bornes.*

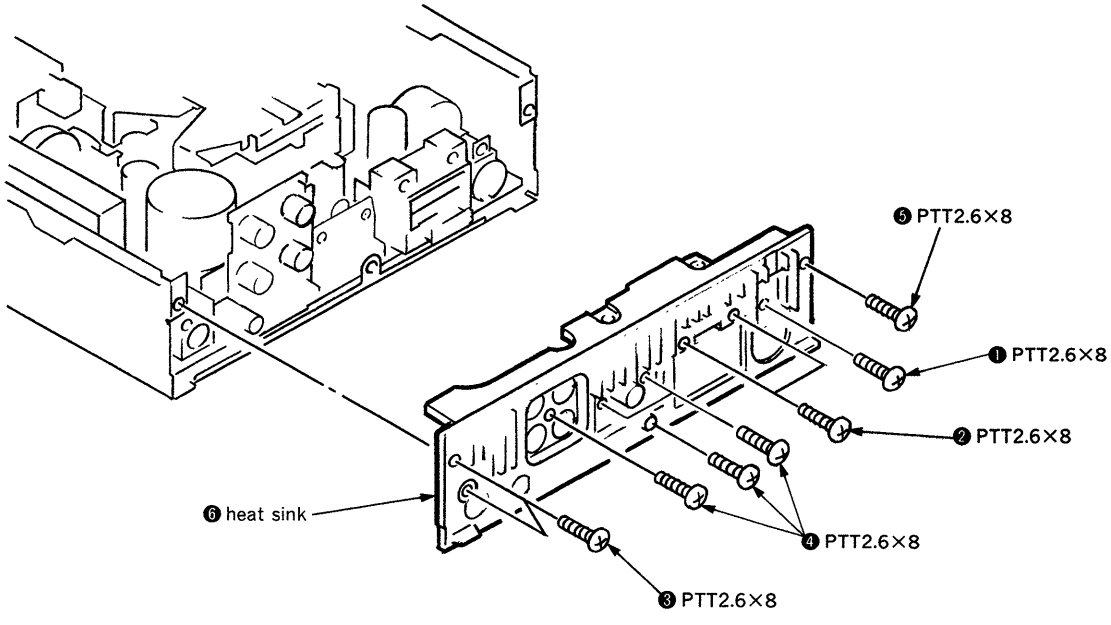
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

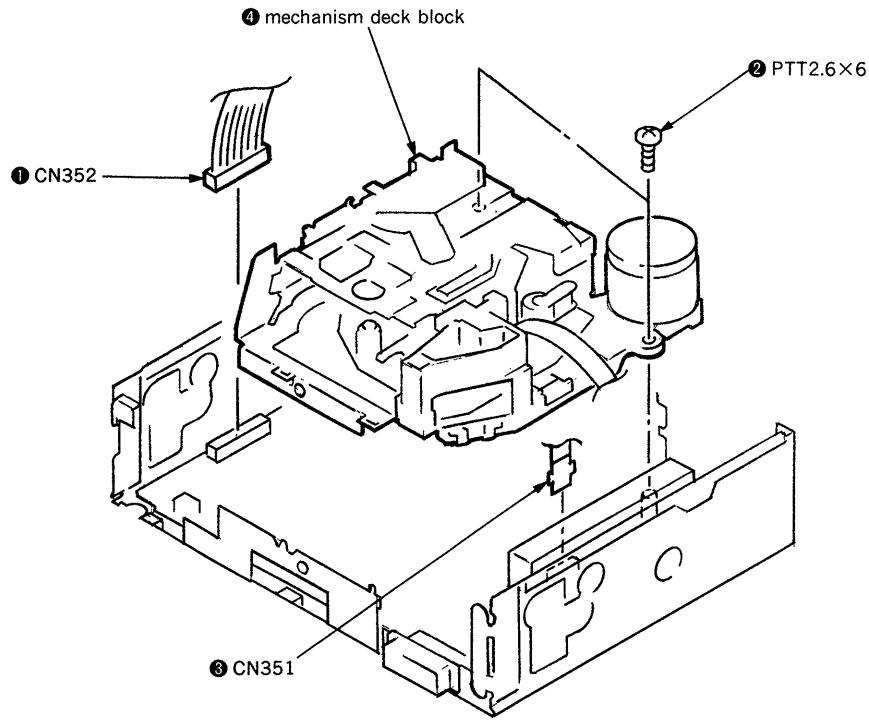
2-1. SUB PANEL ASSY



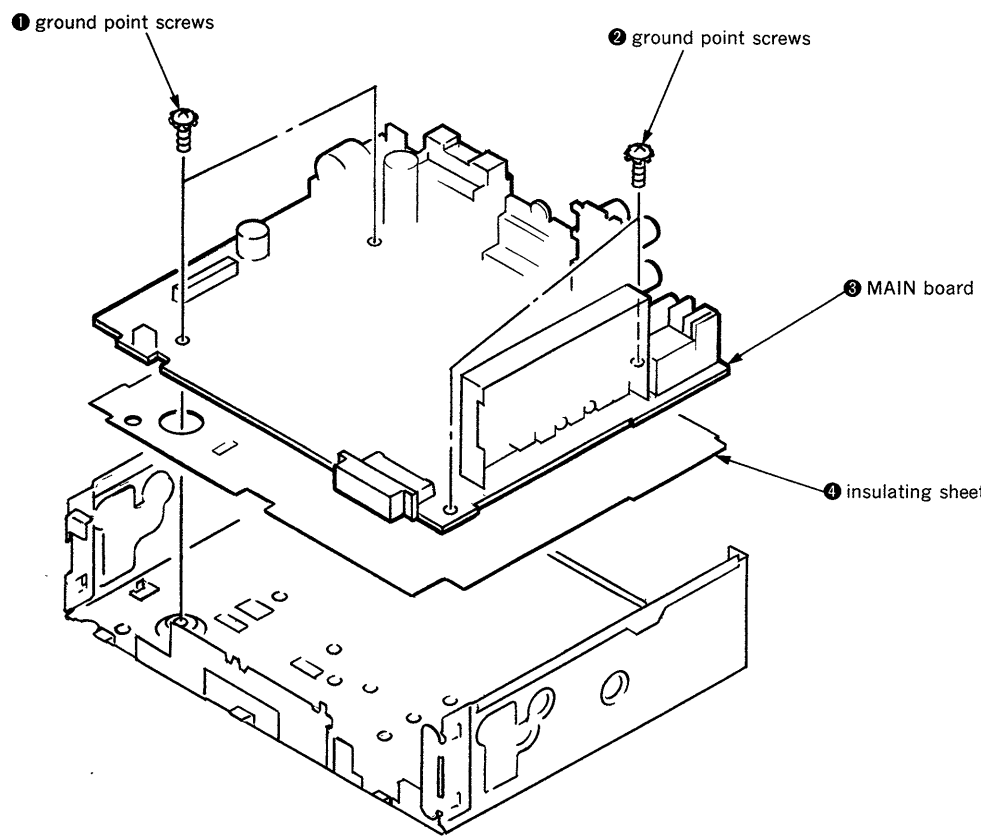
2-2. HEAT SINK



2-3. MECHANISM DECK BLOCK



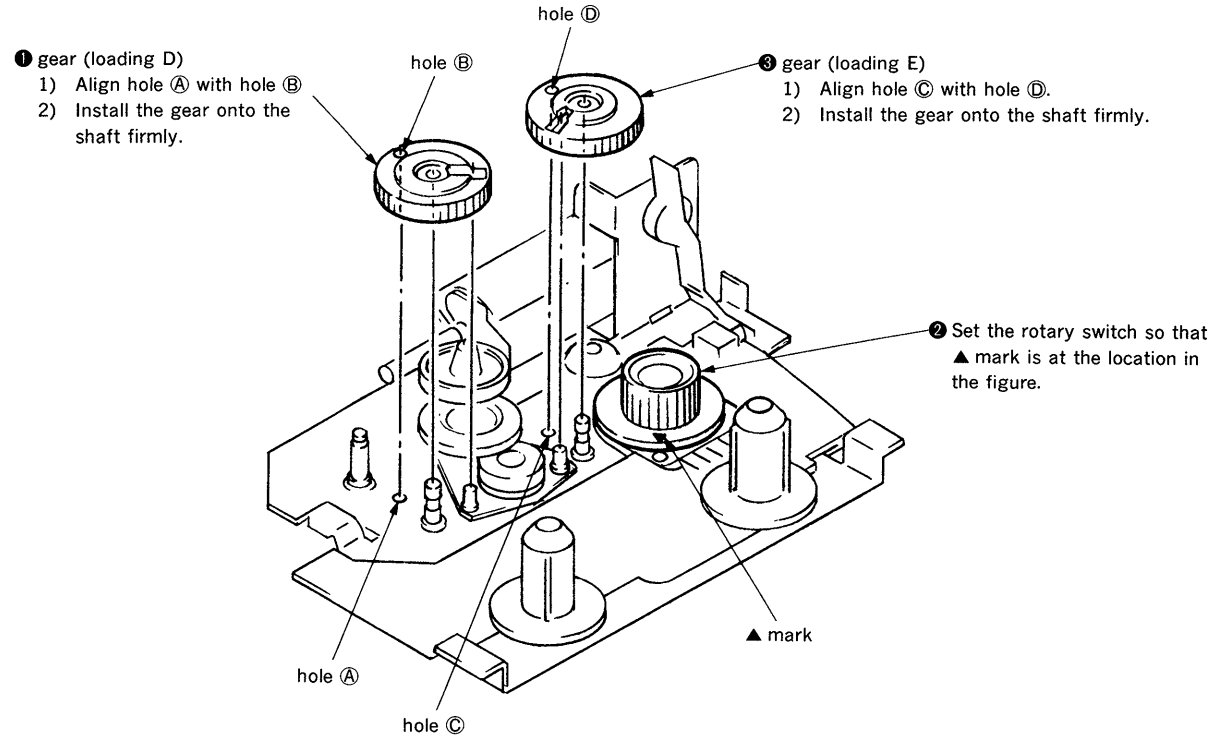
2-4. MAIN BOARD



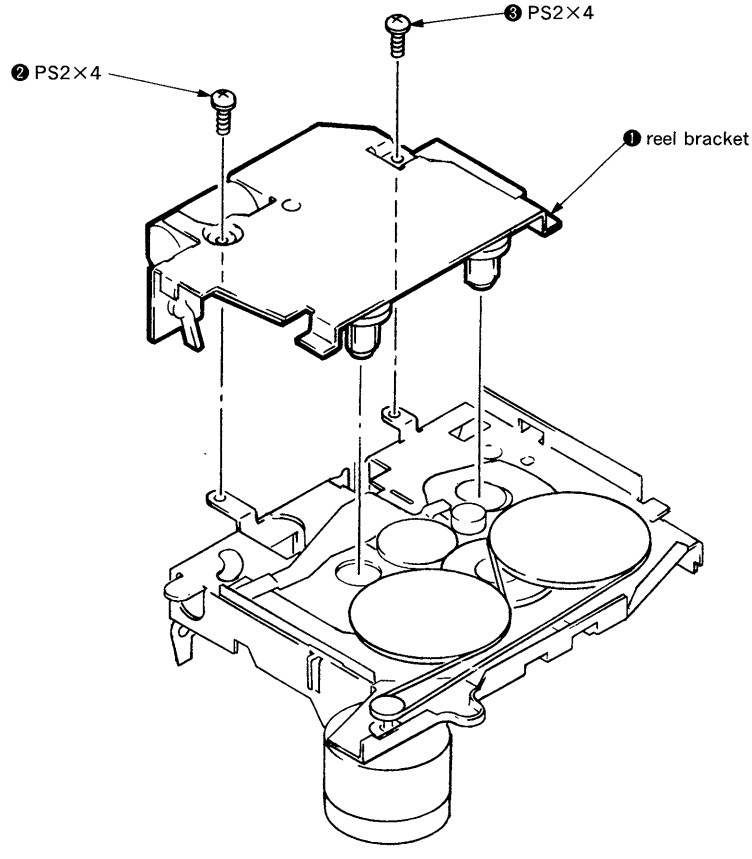
SECTION 3
ASSEMBLY OF MECHANISM DECK

Note : Follow the assembly procedure in the numerical order given.

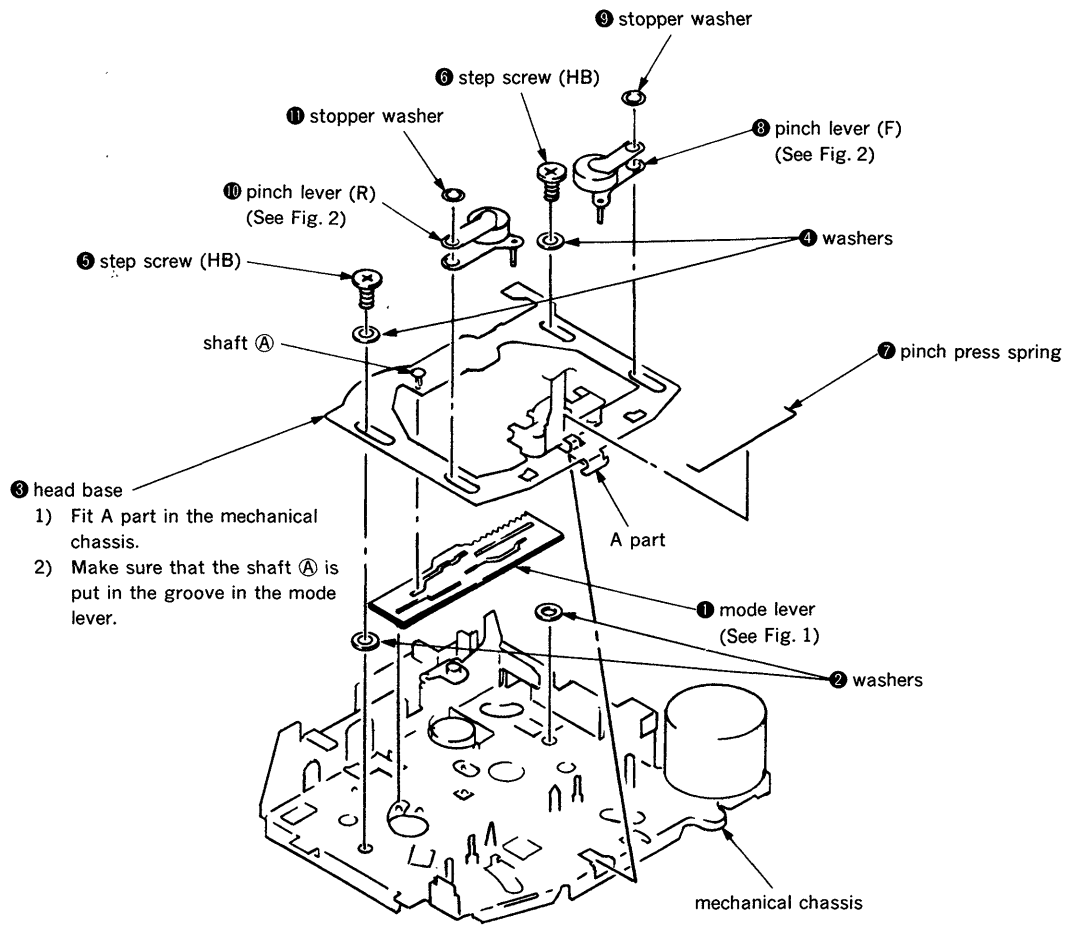
3-1. INSTALLING THE LOADING GEARS


❶ gear (loading D)
1) Align hole Ⓐ with hole Ⓑ
2) Install the gear onto the shaft firmly.
hole Ⓑ
hole Ⓓ
❸ gear (loading E)
1) Align hole Ⓒ with hole Ⓓ.
2) Install the gear onto the shaft firmly.
❷ Set the rotary switch so that ▲ mark is at the location in the figure.
▲ mark
hole Ⓐ
hole Ⓒ

3-2. INSTALLING THE REEL BRACKET



3-3. INSTALLING THE MODE LEVER AND PINCH LEVERS



1) Align • mark on the rotary switch with hole on the mode lever.
2) Make sure that the two shafts and three projections are located as shown below.

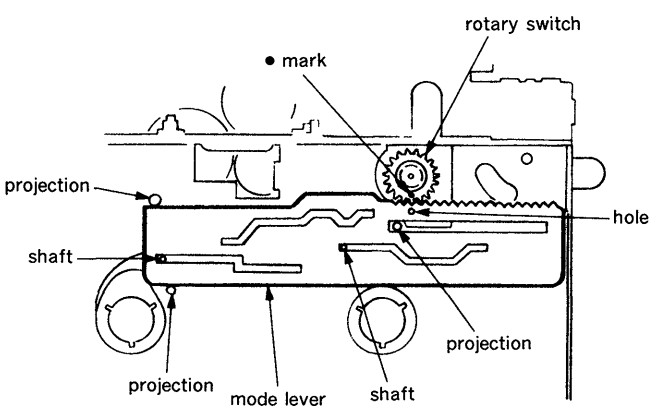


Fig. 1

1) Put the shafts of the pinch levers in the pinch press spring on its head side.

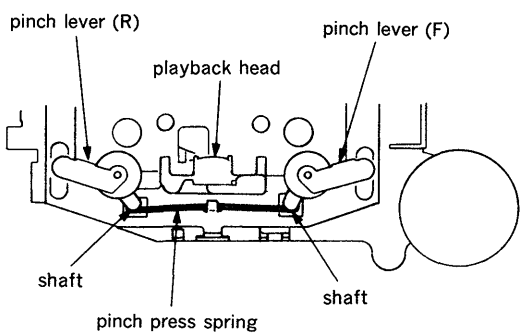


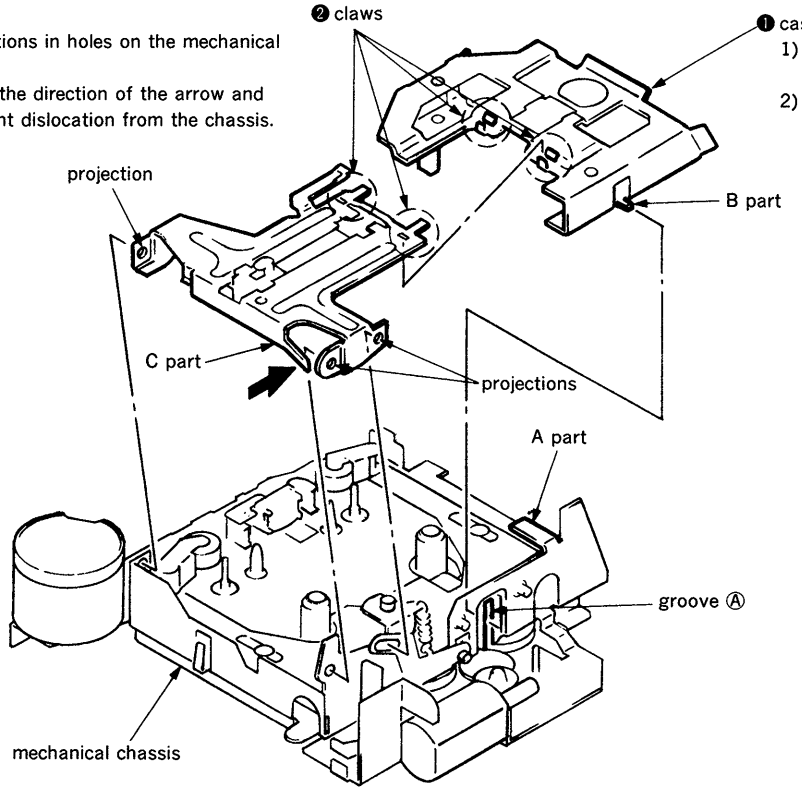
Fig. 2

3-4. INSTALLING THE CASSETTE HOUSING

❸ housing hanger
1) Fit three projections in holes on the mechanical chassis.
2) Bend C part in the direction of the arrow and fasten to prevent dislocation from the chassis.

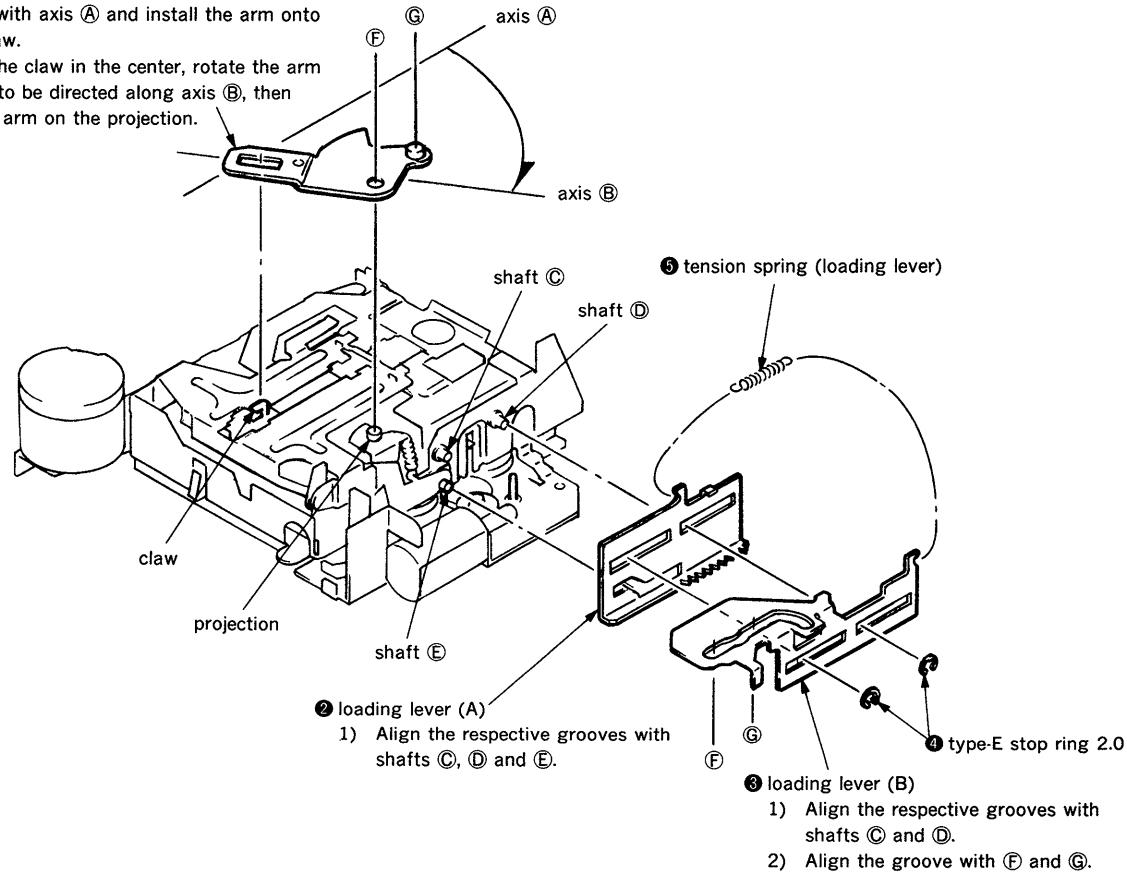
❷ claws

❶ cassette housing
1) Put the cassette housing under A part.
2) Fit B part in groove Ⓐ.

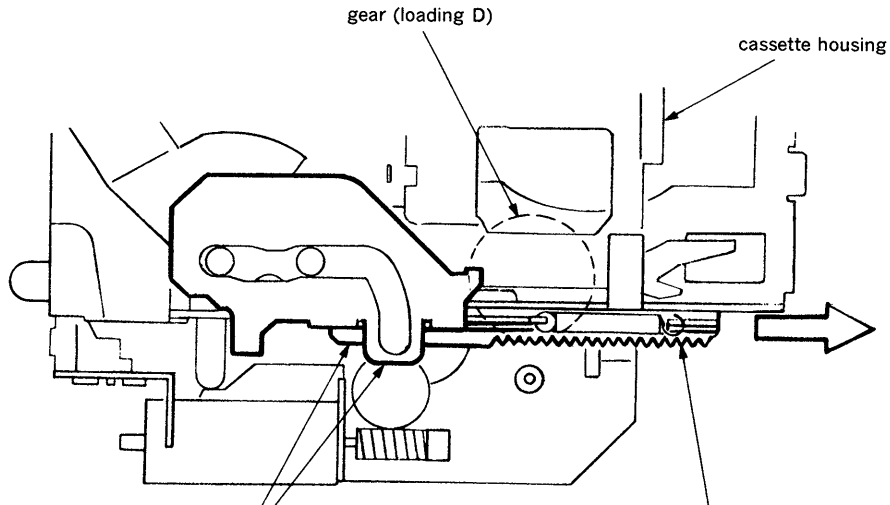


3-5. INSTALLING THE LOADING LEVER

❶ suction arm
1) Align with axis Ⓐ and install the arm onto the claw.
2) With the claw in the center, rotate the arm so as to be directed along axis Ⓑ, then fit the arm on the projection.



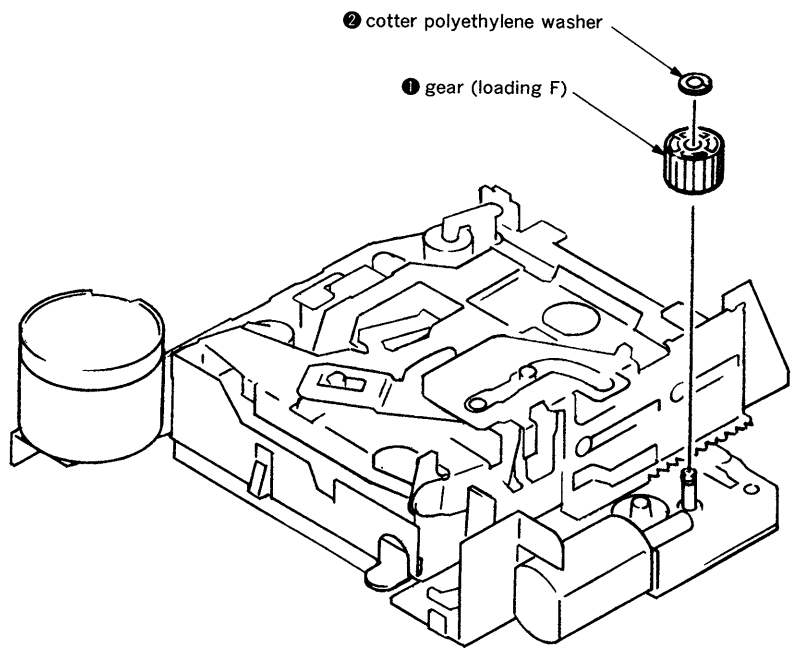
3-6. POSITIONING THE LOADING LEVERS



❶ Loading levers (A) and (B) : Move loading levers (A) and (B) in the direction of the arrow.
(The cassette housing is put down fully at this time.)

❷ Loading lever (A) : Allow the teeth of loading lever (A) to engage with those of the gear (loading D).
(Adjustment method : Retract loading lever (A) by 0.2 to 0.5mm in the opposite direction of the arrow.)

3-7. INSTALLING THE GEAR (LOADING F)



SECTION 4
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before adjustment:
   PB head　　Pinch roller
   Idler　　Rubber belt
   Capstan
2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	30−65g•cm (0.42−0.90 oz•inch)
FWD Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
REV	CQ-102RC	30−65g•cm (0.42−0.90 oz•inch)
REV Back Tension		0.5−4.5g•cm (0.01−0.06 oz•inch)
FF, REW	CQ-201B	60−200g•cm (0.83−2.78 oz•inch)

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 90g (more than 3.18 oz)
REV	CQ-403R	

SECTION 5
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and AM Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

〈Set the Test Mode〉

1. Set the "OFF" mode.
2. Push the preset [4] button.
3. Push the preset [5] button.
4. Press the preset [1] button for more than two seconds.
5. Then the display indicates all lights, the test mode is set.

〈Release the Test Mode〉

1. Push the "OFF" button.

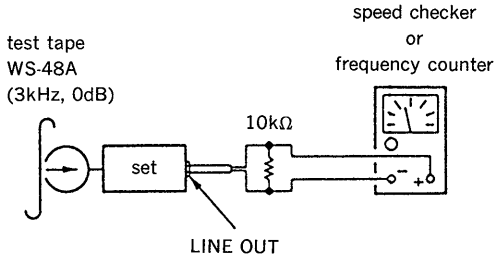
See the adjustment location from on page 19 for the adjustment.

DECK SECTION | **0dB=0.775V**

Tape Speed Adjustment

Procedure:

1. Put the set into the FWD PB mode.



Specification: Constant speed

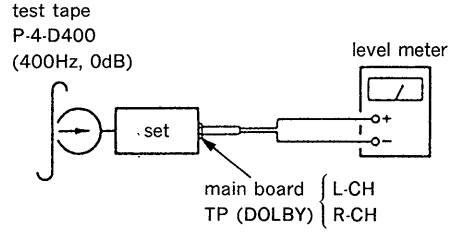
Speed checker	Frequency counter
−1.5 to +2.5%	2,955 to 3,075Hz

Adjustment Location: See page 19.

DOLBY Level Adjustment

Setting:

Preset [3] (DOLBY) button : OFF
SEL (BAS) button : Center
SEL (TRE) button : Center
SEL (BAL) button : Center
SEL (FAD) button : Center
SEL (VOL) button : Maximum



Procedure:

1. Put the set into the FWD PB mode.
2. Adjust RV301 (R-CH) and RV401 (L-CH) so that level meter reading is −9±0.5 dB (0.26 to 0.29V).
3. Put the set into the REV PB mode.
4. Confirm that level meter reading is within specification value.

Adjustment Location: See page 19.

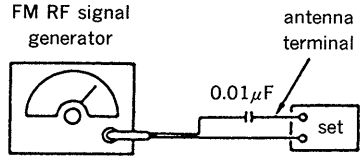
TUNER SECTION | **0dB=1μV**

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Auto Scan/Stop Level Adjustment

Setting :

FM button : FM

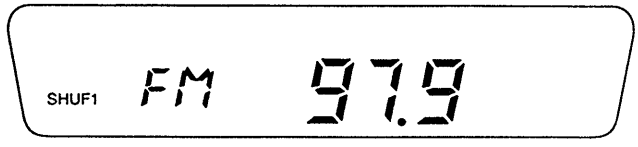


Carrier frequency : 97.9MHz
Output level : 22dB (12.6μV)
Mode : mono
Modulation : 1kHz, 22.5kHz deviation (30%)

Procedure :

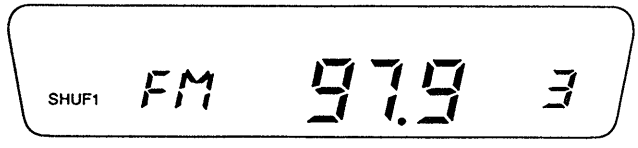
1. Set to the test mode. (See page 16.)
2. Push the [FM] button and set to FM.

Display



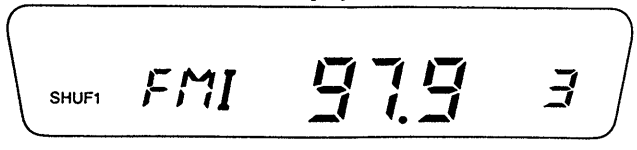
3. Push the preset [3] button.

Display



4. Adjust with the volume RV2 on TU1 so that the "FM" indication turns to "FMI" indication on the display window.
   But, in case of already indicated "FMI", turn the RV2 so that put out light "I" indication and adjustment.

Display

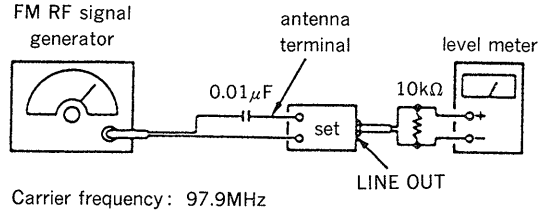


Adjustment Location : See page 19.

FM Stereo Separation Adjustment

Setting :

FM button : FM



Carrier frequency : 97.9MHz
Output level : 70dB (3.2mV)
Mode : stereo
Modulation : main : 1kHz, 33.75kHz deviation (45%)
sub : 1kHz, 33.75kHz deviation (45%)
19kHz pilot : 7.5kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU1 for minimum reading.

L-CH Stereo separation : Ⓐ−Ⓑ
R-CH Stereo separation : Ⓒ−Ⓓ
The separations of both channels should be equal.

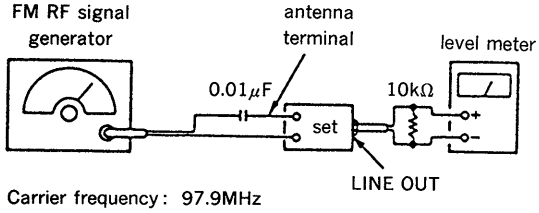
Specification : Separation more than 30dB

Adjustment Location : See page 19.

FM Noise Focus Adjustment

Setting :

FM button : FM



Carrier frequency : 97.9MHz
Output level : 60dB (1mV)
Mode : stereo
Modulation : 1kHz, 75kHz deviation (100%)

Procedure :

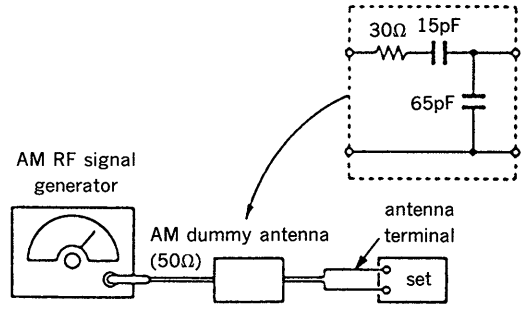
1. Tune the 97.9MHz.
2. The then output level is supposing that (A) dB.
3. Adjust with the volume RV3 on TU1 so that the output level is (A)−32±2dB then signal generator input set to −20dB.

Adjustment Location : See page 19.

AM Auto Scan/Stop Level Adjustment

Setting :

AM button : AM



Carrier frequency : 1000kHz
30% amplitude modulation by 1kHz signal
Output level : 33dB (44.7μV)

Procedure :

1. Set to the test mode. (See page 16.)
2. Push the [AM] button and set to AM.

Display

3. Push the preset [3] button.

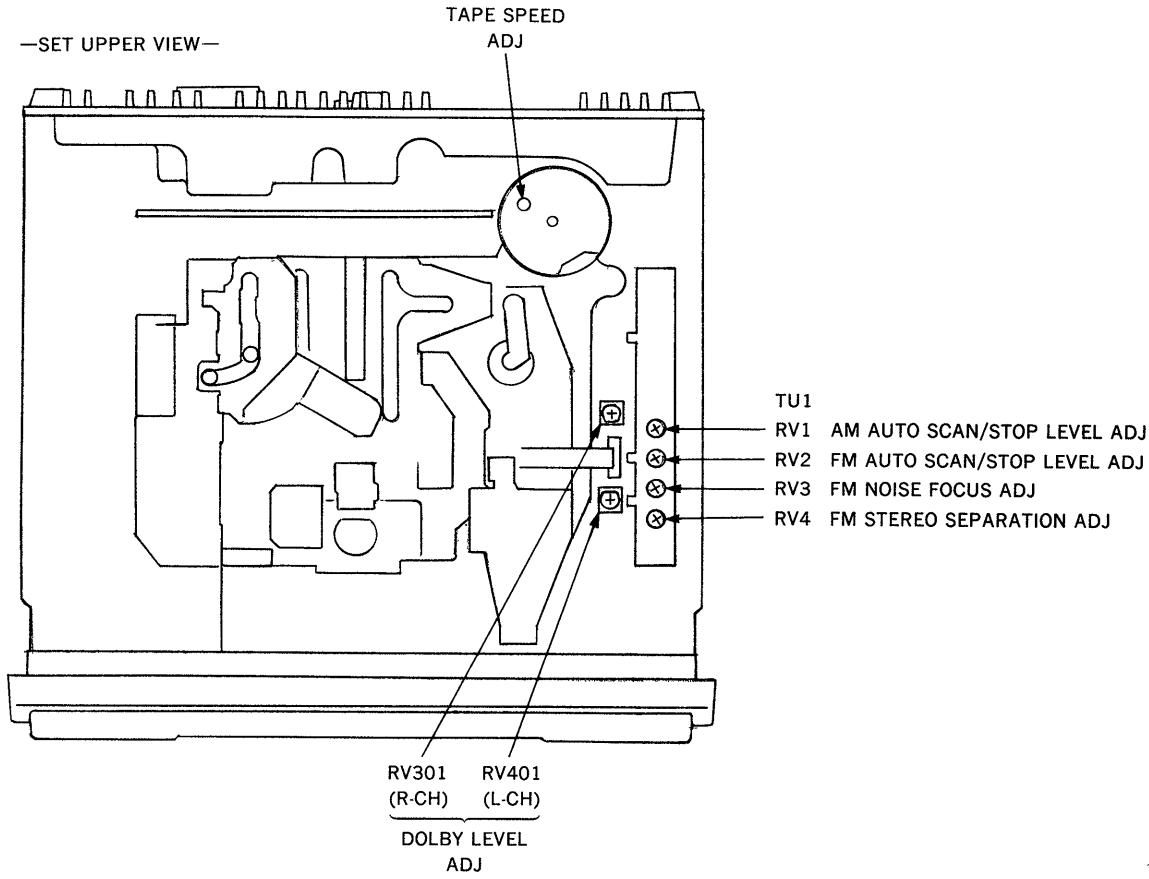
Display

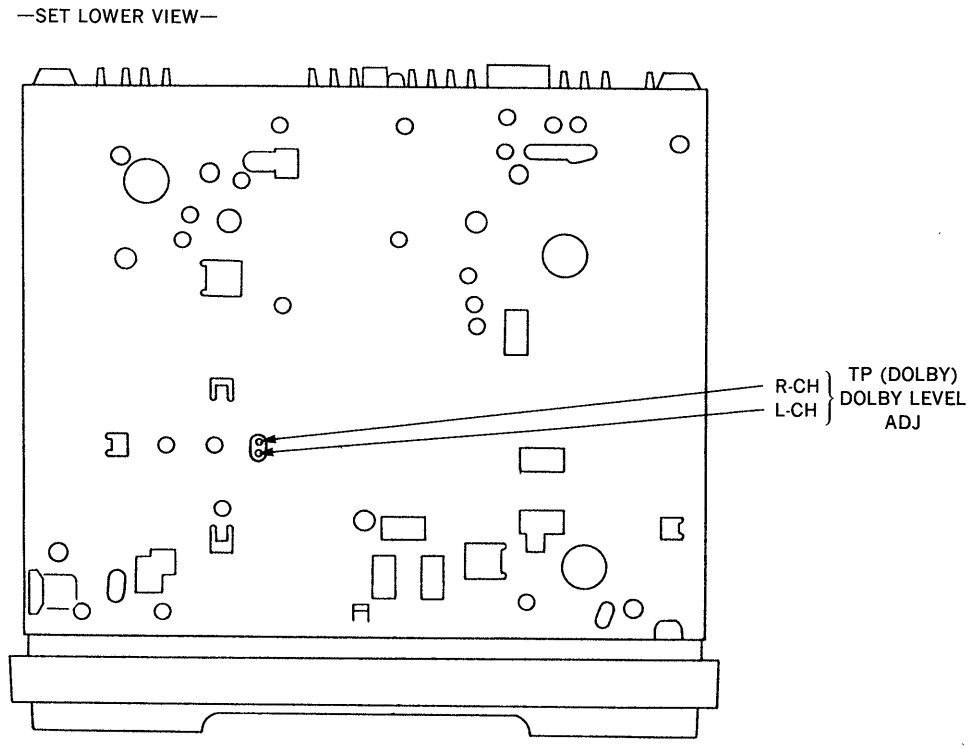
4. Adjust with the volume RV1 on TU1 so that the "AM" indication turns to "AMI" indication on the display window.
   But, in case of already indicated "AMI", turn the RV1 so that put out light "I" indication and adjustment.

Display

Adjustment Location : See page 19.

Adjustment Location :





SECTION 6
DIAGRAMS

6-1. IC PIN DESCRIPTION

• IC501 μPD17708GC-527-3B9 (SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Pin Description
1	ILLIN	I	Illumination signal detection input terminal
2	POS3	I	Position signal detection input terminal
3	POS2	I	Position signal detection input terminal
4	POS0	I	Position signal detection input terminal
5	POS1	I	Position signal detection input terminal
6	TAPEON	O	Tape power control output terminal. At TAPE-ON : High output
7	CM ON	O	Capstan motor control output terminal. At CM-ON : High output
8	LM LOD	O	Loading motor control output terminal (LOADING direction). At LM-LOD : High output
9	LM EJ	O	Loading motor control output terminal (EJECT direction). At LM-EJ : High output
10	TUNON	O	TUNER power control output terminal. At TUNER-ON : High output
11	FM ON	O	FM power control output terminal. At FM-ON (both playing and behind) : High output
12	PW ON	O	System power control output terminal. At PW-ON : High output
13	MUT	O	System mute control output terminal. At MUTE : High output
14	VOLCE	O	Electric volume serial chip enable output terminal. At VOL-CE : High output
15	VOLCKO	O	Electric volume serial clock output terminal
16	VOLSO	O	Electric volume serial data output terminal
17	AMPON	O	Power amplifier power control output terminal. At AMP-ON : High output
18	$\overline{\text{AMPMUT}}$	O	Power amplifier mute control output terminal. At AMP-MUTE : Low output
19	$\overline{\text{DX}}$ LO	O	DX/LOCAL select control output terminal. At DX : Low output, at LOCAL : High output
20	$\overline{\text{AM MONO}}$	O	AM force monaural output terminal. Not used in this set.
21	GND	—	GND
22	DSTSEL1	I	Destination setting terminal. Fixed at "L".
23	DSTSEL0	I	Destination setting terminal. Fixed at "H".
24	KEYIN1	I	KEY input
25	KEYIN0	I	KEY input
26	RC IN0	I	Rotary commander input terminal
27	VSM	I	FM/AM common signal meter A/D change input terminal
28	AMIFIN	—	AM IF input terminal
29	FMIFIN	—	FM IF input terminal
30	VDD2	—	Power supply terminal
31	FM OSC	—	FM local oscillation input terminal
32	AM OSC	—	AM local oscillation input terminal
33	GND	—	GND
34	N. C.	—	Not used.
35	EO1	—	Main charge pump output terminal
36	TEST0	—	Device test mode input terminal
37	$\overline{\text{AM STIN}}$	—	AM stereo signal detection input terminal. Connected to GND in this set.
38	$\overline{\text{SEKOUT}}$	O	SEEK control output terminal. At SEEK : Low output
39	$\overline{\text{MW}}$ SW	O	MW/SW power select output terminal. At MW : Low output, at SW : High output
40	BEEP	O	Buzzer control output terminal
41	KEYACK	I	Key acknowledge input terminal
42	BU IN	I	Back-up voltage detection input terminal

Pin No.	Pin Name	I/O	Pin Description
43	MTLSEL	I/O	METAL control input/output terminal. At AUTO METAL : METAL input terminal. At METAL : Low input, at NORMAL : High input. At no AUTO METAL : METAL output terminal. At METAL : Low output, at NORMAL : High output.
44	DOLON	I/O	DOLBY-NR control input/output terminal. At DOLBY-NR ON : High output
45	$\overline{\text{AMSIN}}$	I	Tape music with/without detection input terminal. With music : Low input, without music : High input
46	$\overline{\text{ST}}$	I/O	Both as FM STEREO input and FM MONO output terminal. At FM STEREO : Low input, at FM MONO : High output
47	$\overline{\text{AMS ON}}$	O	At AMS : Low output
48	$\overline{\text{N}}$ ROUT	O	Forward/Reverse detection output terminal. At FORWARD : Low output, at REVERSE : High output
49	TAPMUT	O	Tape mute control output terminal. At MUTE : High output
50	ILLON	O	Illumination power control output terminal. At ACC-ON : High output (P-SEL : ON)
51	SD IN	I	Station detector detection input terminal. At with SD : High input
52	$\overline{\text{NOSESW}}$	I	Front panel with/without detection input terminal. At with front panel : Low input
53	REL S	I	Reel table reverse direction rotation detection input terminal
54	REL T	I	Reel table forward direction rotation detection input terminal
55	$\overline{\text{ACCIN}}$	I	ACC power control input terminal. With ACC : Low input
56	$\overline{\text{TESTIN}}$	I	Test mode setting input terminal
57	RC IN1	I	Rotary commander input terminal
58	PW SEL	I	Power select first setting input terminal
59	$\overline{\text{MTLIN}}$	I	AUTO METAL detection input terminal. At AUTO-METAL : Low input
60	KEYACT	I	Key action detection input terminal
61	KEYSEL0	I	Key function select setting input terminal
62	KEYSEL1	I	Key function select setting input terminal
63	COLORSEL	I	Illumination color first setting input terminal. At AMBER : Low input, at GREEN : High input
64	LCDCE	O	LCD chip enable output terminal
65	LCDCKO	O	LCD serial clock output terminal
66	LCDSO	O	LCD serial data output terminal
67	$\overline{\text{LCDINH}}$	O	LCD blank display control output terminal. At LIGHT-OFF : Low output
68	UNICKI	I	Serial clock input terminal
69	UNISO	O	Serial data output terminal
70	UNISI	I	Serial data input terminal
71	UNICKO	O	Serial clock output terminal
72	$\overline{\text{BUSON}}$	O	BUS ON control output terminal
73	$\overline{\text{SYSRST}}$	O	System reset control output terminal
74	VREG	—	CPU regulator output terminal
75	GND	—	GND
76	X OUT	—	Connect to crystal (4.5MHz).
77	X IN	—	Connect to crystal (4.5MHz).
78	CE	—	Device operation select, CE reset and divided signal input terminal.
79	VDD1	—	Power supply terminal
80	$\overline{\text{RESET}}$	—	RESET input terminal. At RESET : Low input

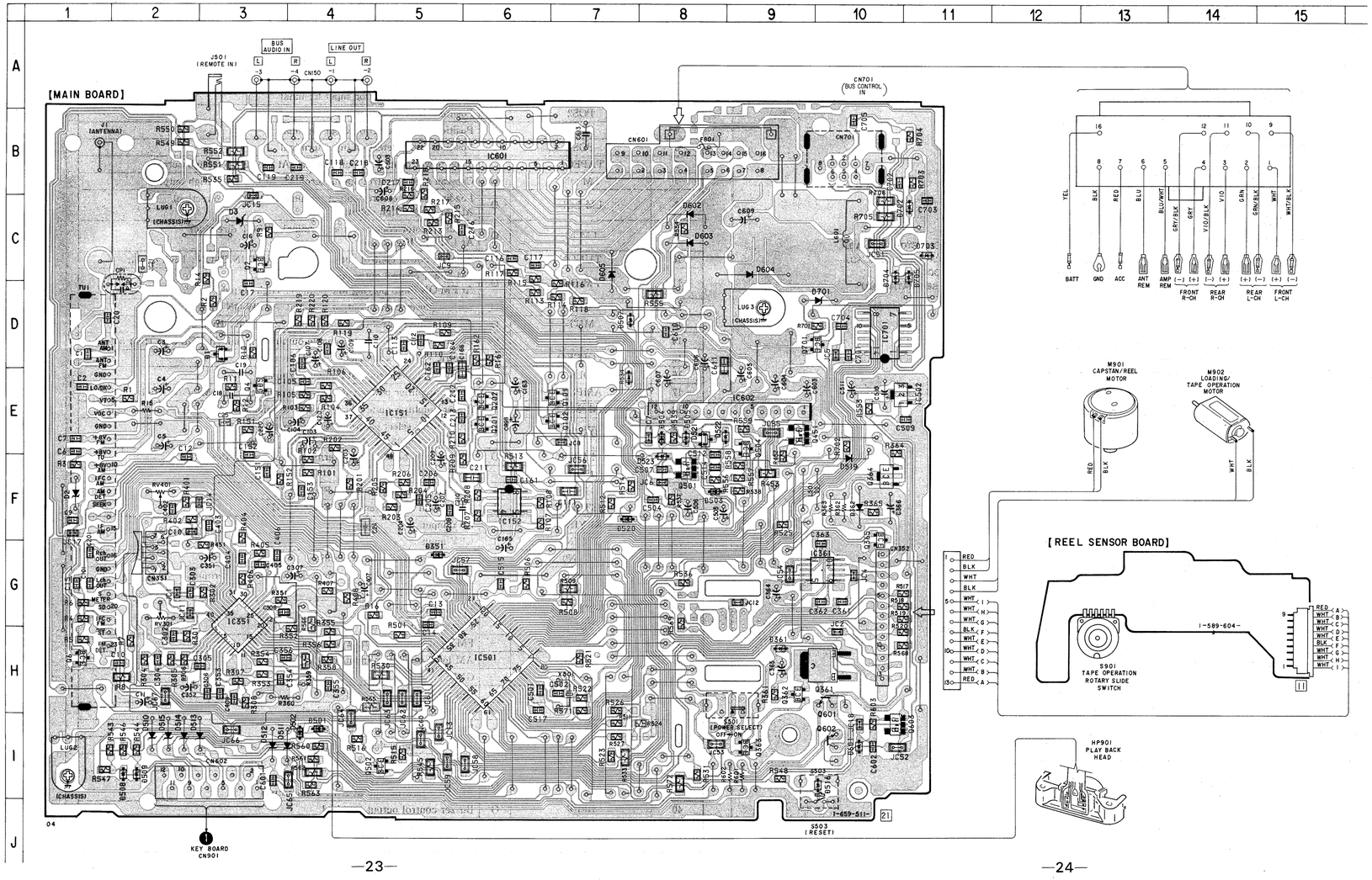
6-2. PRINTED WIRING BOARDS—MAIN SECTION—

• Semiconductor Location

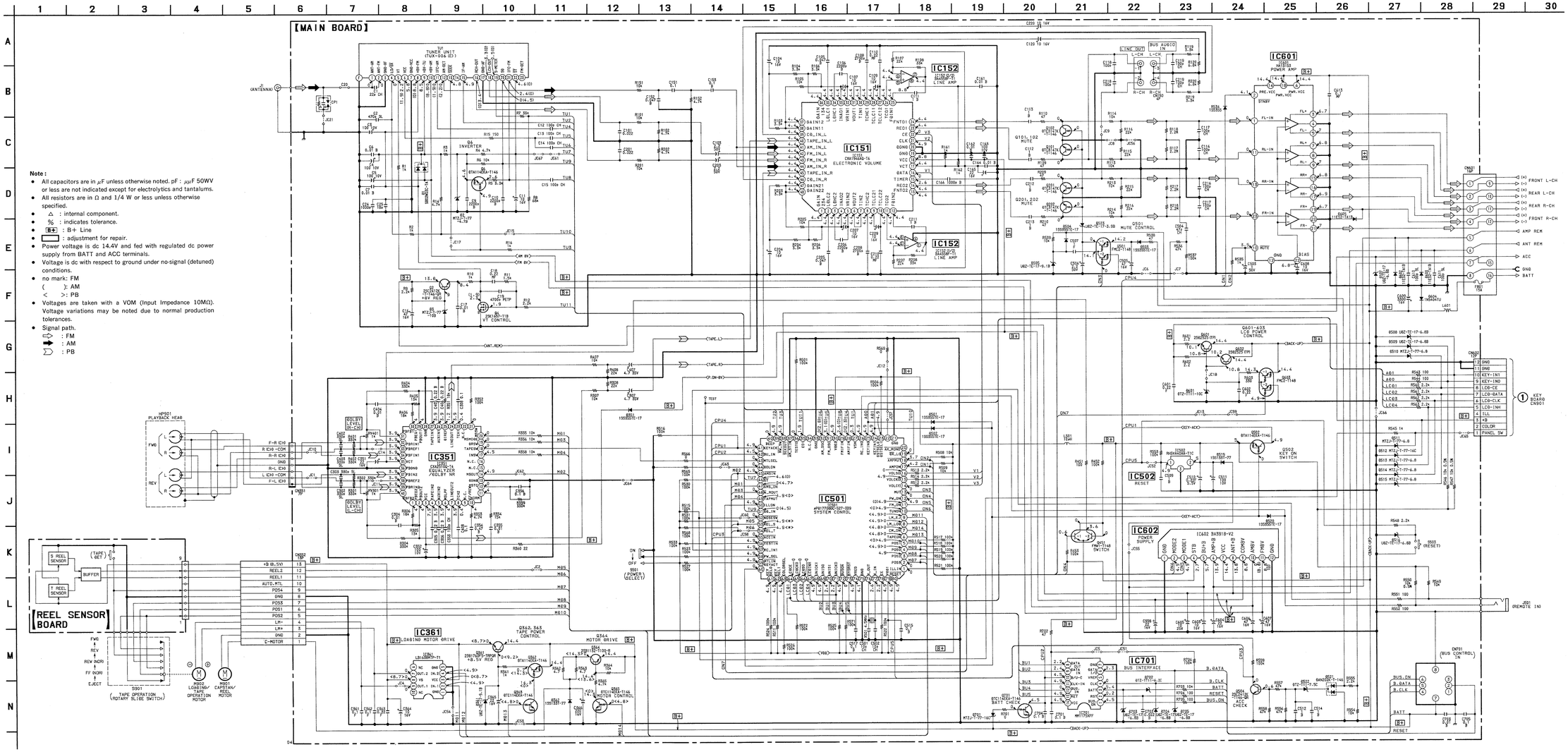
Ref. No.	Location	Ref. No.	Location
D1	D-3	D705	C-10
D2	F-1		
D3	C-3	IC151	E-5
D351	G-5	IC152	F-6
D361	H-9	IC351	G-3
D362	F-10	IC361	G-10
D501	I-4	IC501	H-6
D502	I-4	IC502	E-11
D503	F-8	IC601	B-6
D504	E-8	IC602	E-9
D505	E-8	IC701	D-10
D507	D-7		
D508	I-2	Q2	C-3
D509	I-2	Q4	E-3
D510	I-2	Q6	H-1
D511	I-3	Q101	E-7
D512	I-3	Q102	E-7
D513	I-2	Q201	E-6
D514	I-2	Q202	E-6
D515	I-2	Q361	H-10
D516	I-10	Q362	H-9
D519	F-10	Q363	I-9
D520	F-7	Q364	F-10
D521	E-8	Q365	F-10
D522	E-8	Q451	E-9
D523	F-8	Q501	F-8
D601	I-10	Q502	I-5
D602	C-8	Q504	E-9
D603	C-8	Q601	H-10
D604	C-9	Q602	I-10
D605	C-7	Q603	I-11
D701	D-10	Q701	D-10
D702	C-10		
D703	C-11	R534	E-7
D704	C-10		

Note :

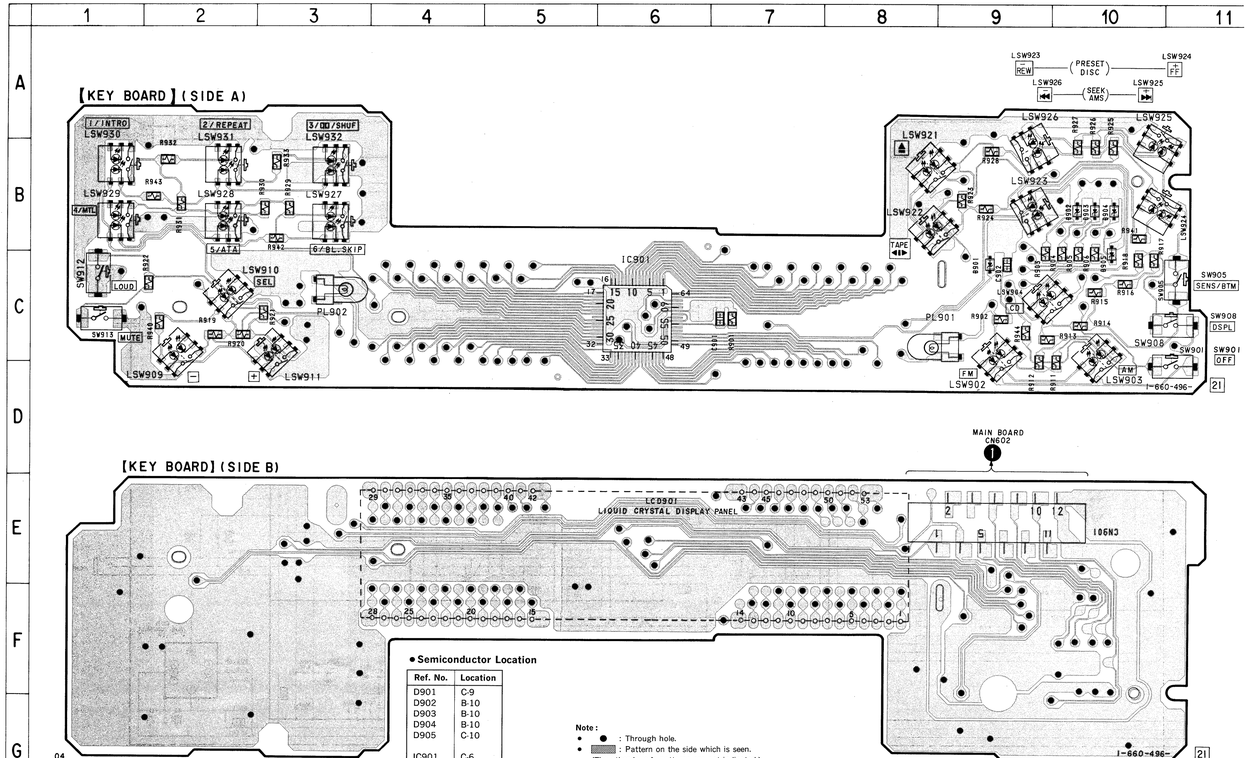
- ○— : parts extracted from the component side.
- ▨ : Pattern on the side which is seen.



6-3. SCHEMATIC DIAGRAM—MAIN SECTION— • Refer to page 33 for IC Block Diagrams.


【MAIN BOARD】
【REEL SENSOR BOARD】
IC151
IC152
IC351
IC361
IC501
IC502
IC601
IC602
IC701
Q501 MUTE CONTROL
Q601,602 MUTE
Q562,563 TAPE POWER CONTROL
Q564 MOTOR DRIVE
Q565 MOTOR CONTROL
Q601-605 LCD POWER CONTROL
Q2502 KEY ON SWITCH
Q602 RESET
Q701 BUS INTERFACE
HP001 PLAYBACK HEAD
M001 CAPSTAN/REEL MOTOR
M002 LOADING/TAPE OPERATION MOTOR
S901 TAPE OPERATION (ROTARY SLIDE SWITCH)
TUNER UNIT (TU-X0A 057)
FRONT L-CH
REAL L-CH
REAR R-CH
FRONT R-CH
AMP REM
ANT REM
ACC
GND
BATT
KEY BOARD CN501
REMOTE IN
Note :
• All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
• All resistors are in Ω and 1/4 W or less unless otherwise specified.
• △ : internal component.
• % : indicates tolerance.
• B+ : B+ Line
• ▭ : adjustment for repair.
• Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
• Voltage is dc with respect to ground under no-signal (detuned) conditions.
• no mark: FM
( ): AM
< >: PB
• Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
• Signal path.
⇨ : FM
➡ : AM
⇨ : PB

6-4. PRINTED WIRING BOARD—PANEL SECTION—

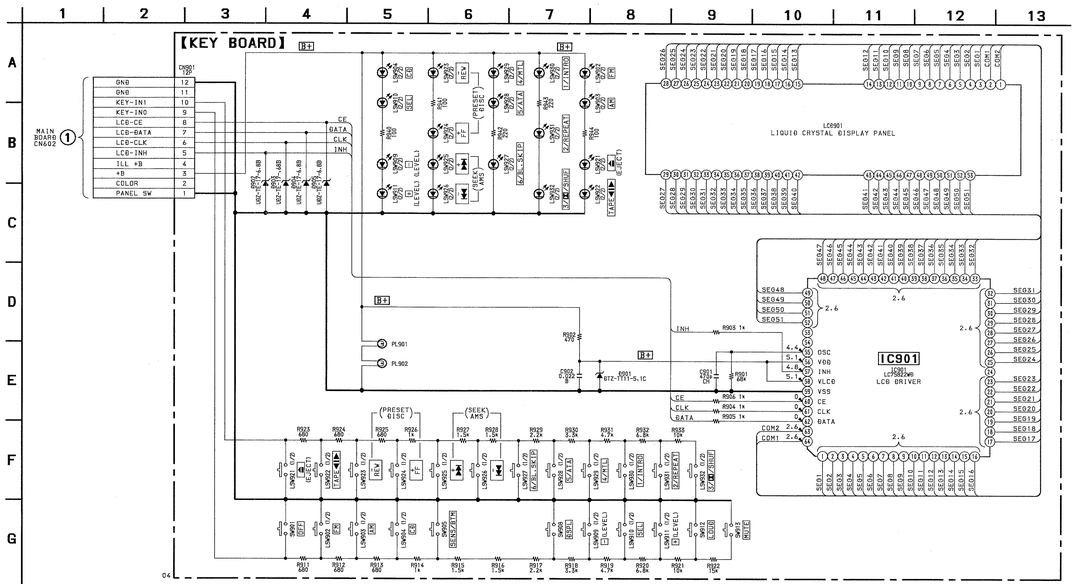


● Semiconductor Location

Ref. No.	Location
D901	C-9
D902	B-10
D903	B-10
D904	B-10
D905	C-10
IC901	C-6

Note :
- ● : Through hole.
- ▭ : Pattern on the side which is seen. (The other layer's patterns are not indicated.)

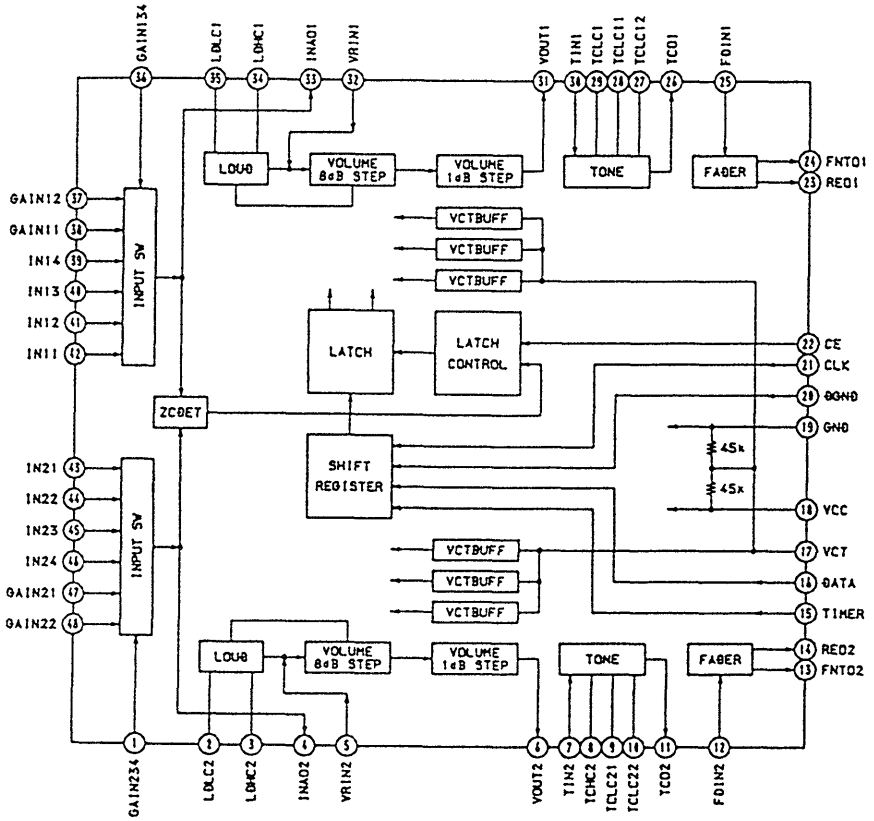
6-5. SCHEMATIC DIAGRAM—PANEL SECTION—



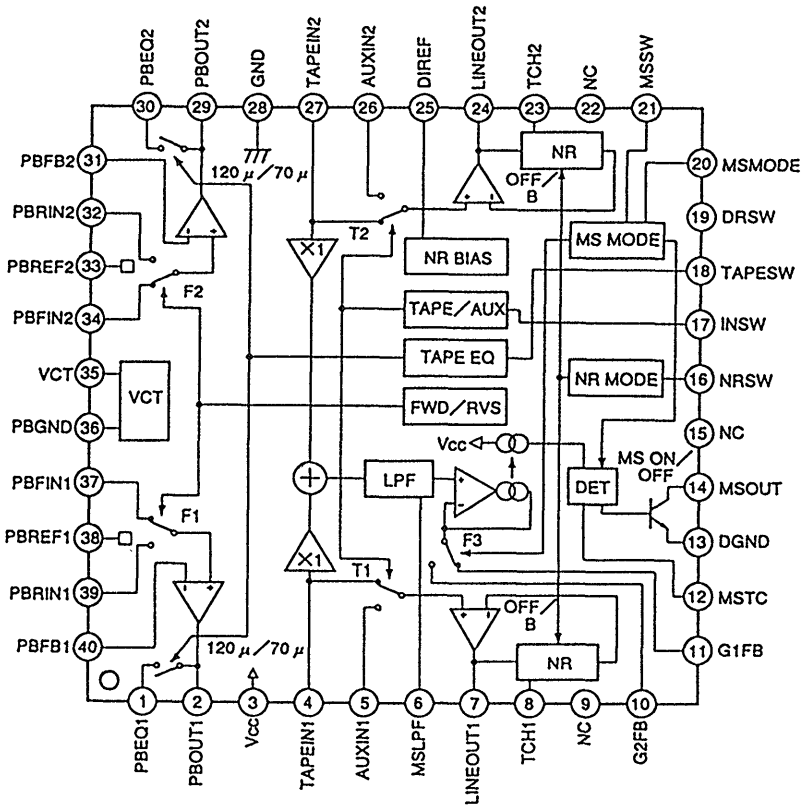
Note :
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

• IC Block Diagrams

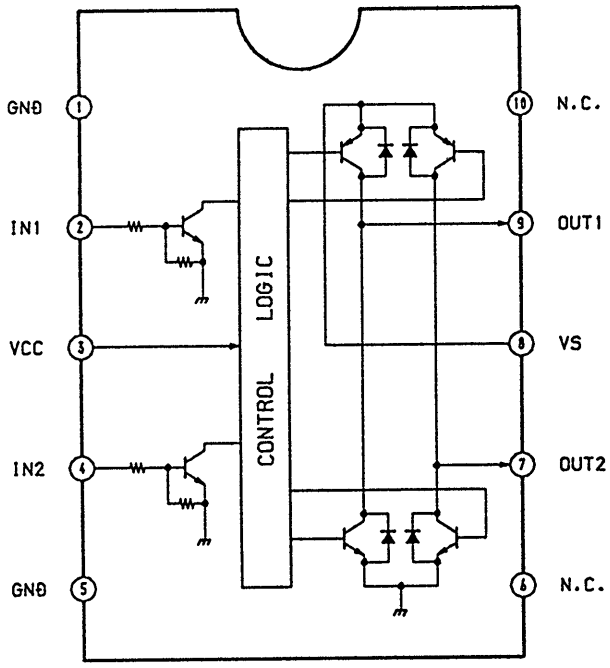
IC151 CXA1946AQ-T6



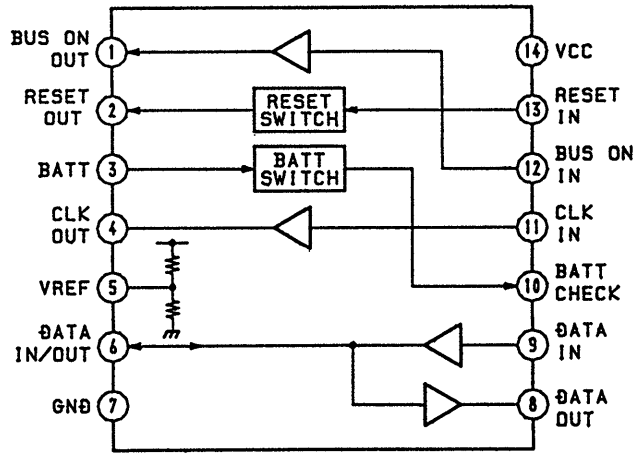
IC351 CXA2510Q-T4



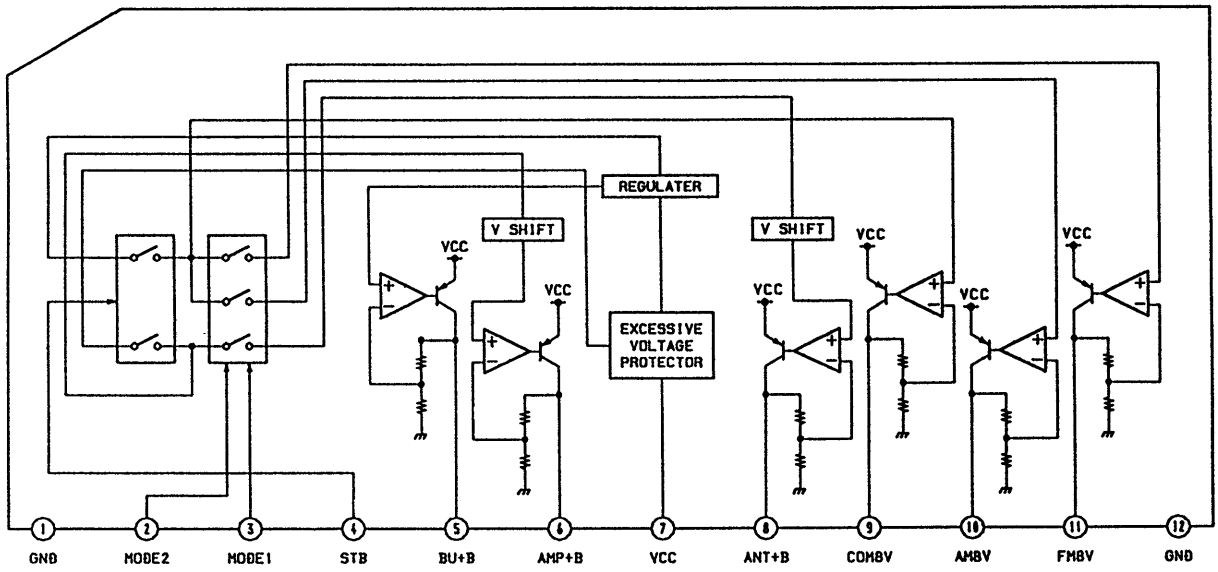
IC361 LB1638MTP-T1



IC701 MM1175XFF



IC602 BA3918-V2

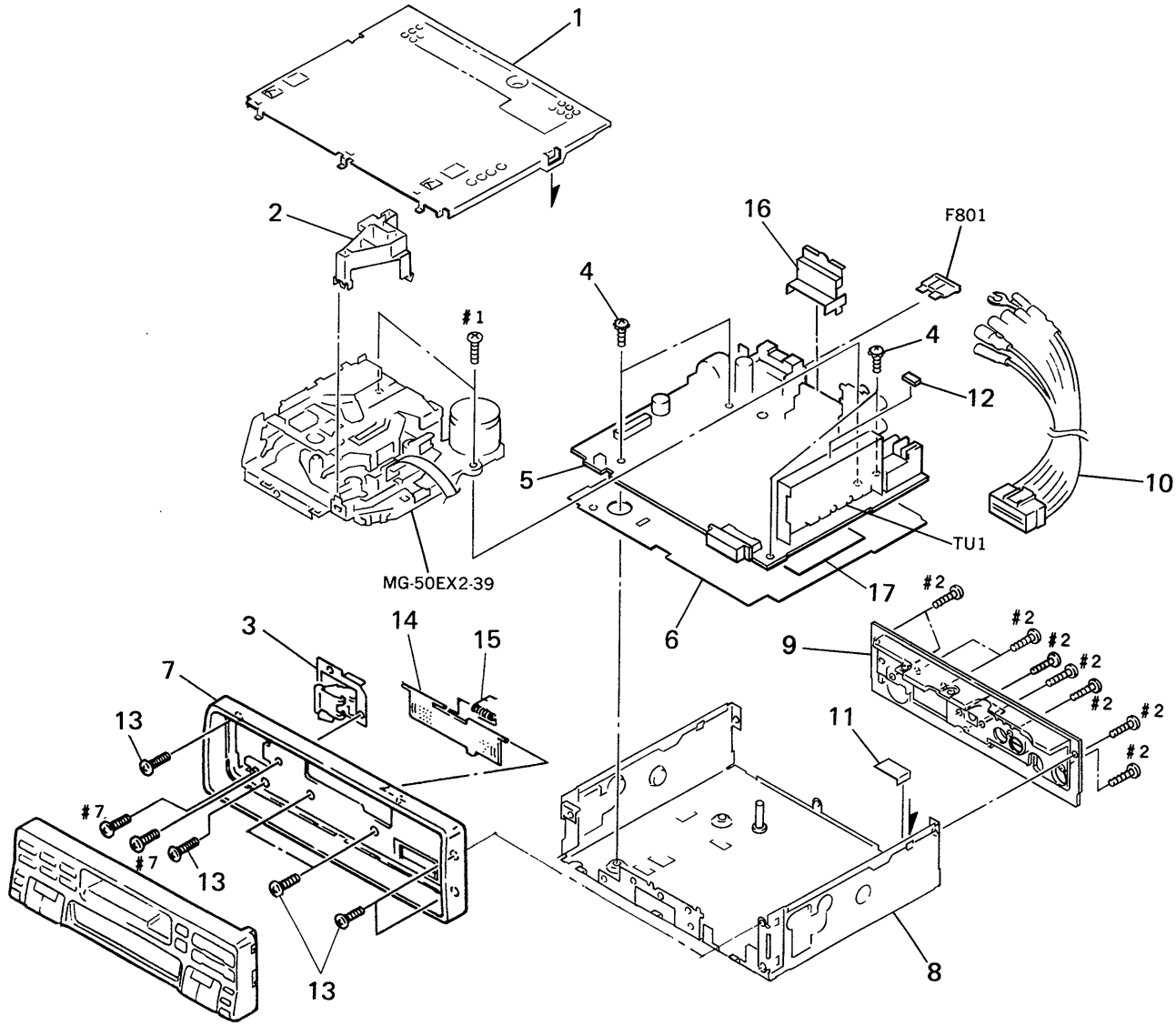


SECTION 7
EXPLODED VIEWS

NOTE:

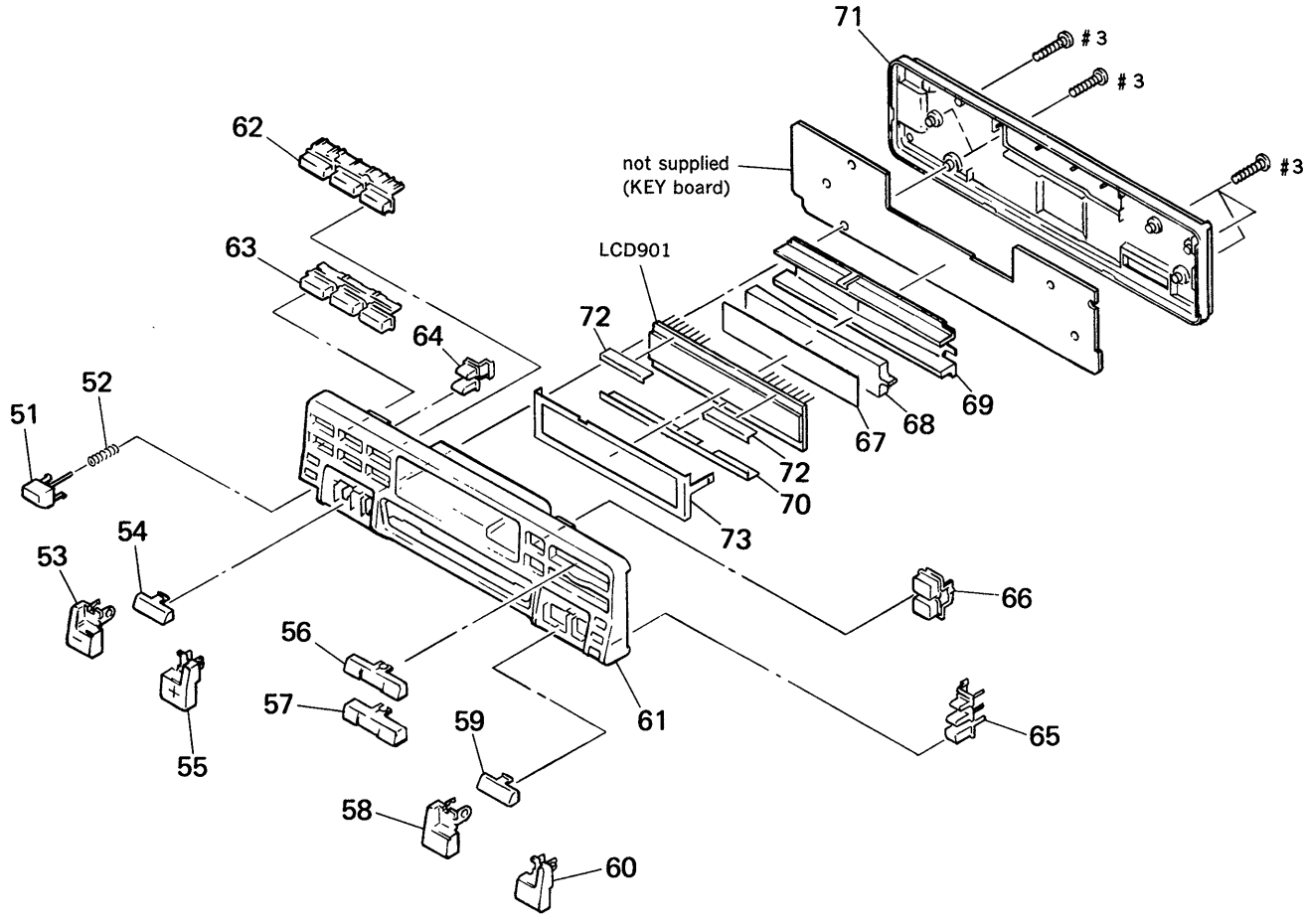
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)... (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

7-1. CHASSIS SECTION



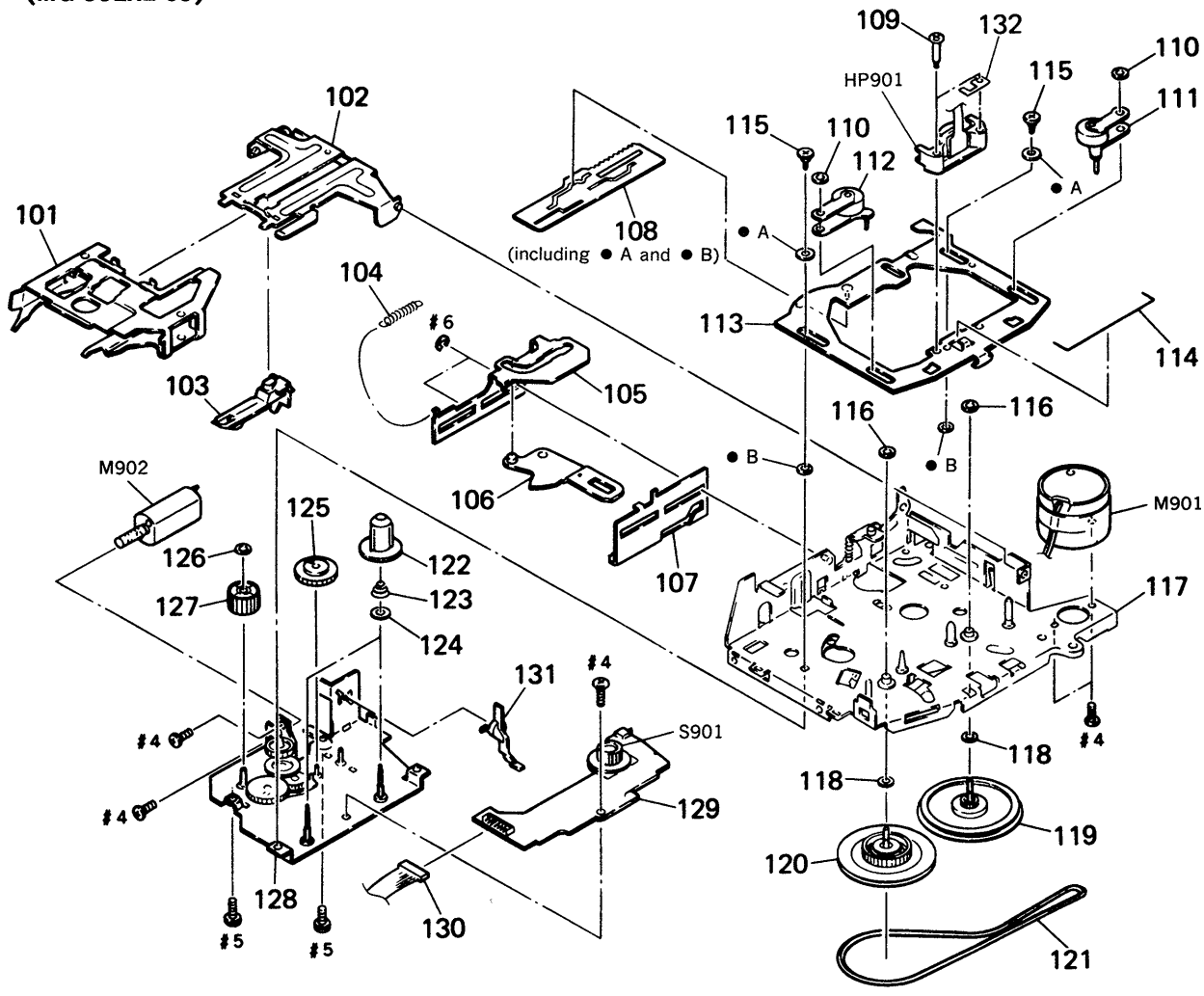
Ref. No.	Part No.	Description	Remark
* 1	X-3369-736-1	COVER ASSY	
2	3-927-799-01	GUIDE (CASSETTE)	
3	X-3367-636-1	LOCK ASSY	
4	3-915-923-01	SCREW, GROUND POINT	
* 5	A-3309-469-A	MAIN BOARD, COMPLETE	
* 6	3-931-415-01	SHEET, INSULATING	
7	3-921-728-01	PANEL, SUB	
* 8	X-3371-519-1	CHASSIS ASSY	
* 9	3-931-219-01	HEAT SINK	
10	1-776-207-31	CORD (WITH CONNECTOR)	
* 11	3-925-065-01	SHEET (CU)	
12	9-911-840-XX	CUSHION (U)	
13	3-907-995-01	SCREW (2.6X8) (BZN), +PTT	
14	3-923-004-31	DOOR, CASSETTE	
15	3-913-076-01	SPRING (C DOOR), TORSION	
* 16	3-920-606-02	BRACKET (IC)	
* 17	3-937-324-01	SHEET (CU), SHIELD	
F801	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) 15A	
TU1	A-3282-012-A	TUNER UNIT (TUX-006(E))	

7-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-918-689-01	BUTTON (RELEASE)	
52	3-918-693-01	SPRING (RELEASE)	
53	3-918-680-01	BUTTON (-)	
54	3-918-678-01	BUTTON (SEL)	
55	3-918-679-01	BUTTON (+)	
56	3-918-685-01	BUTTON (SEEK)	
57	3-918-686-21	BUTTON (PRESET)	
58	3-918-682-11	BUTTON (L)	
59	3-918-681-01	BUTTON (U)	
60	3-918-683-21	BUTTON (R)	
61	3-933-971-11	PANEL, FRONT	
62	3-918-676-21	BUTTON (1-3)	
63	3-918-677-01	BUTTON (4-6)	
64	3-918-687-01	BUTTON (2 GANG)	
65	3-918-688-01	BUTTON (3 GANG)	
66	3-918-684-01	BUTTON (EJECT)	
* 67	3-924-226-01	SHEET (REFLECTOR)	
* 68	3-921-731-03	PLATE, LIGHT GUIDE	
* 69	3-921-730-01	HOLDER (LCD)	
* 70	3-921-726-01	SHEET (LCD) (L)	
71	3-921-729-01	PANEL, FRONT BACK	
* 72	3-921-727-01	SHEET (LCD) (S)	
* 73	3-925-112-01	PLATE, GROUND	
LCD901	1-801-161-21	DISPLAY PANEL, LIQUID CRYSTAL	

7-3. MECHANISM DECK SECTION (MG-50EX2-39)



Ref. No.	Part No.	Description	Remark
101	3-928-222-01	HOUSING (2), CASSETTE	
102	3-912-882-01	HANGER (2), HOUSING	
103	3-912-884-01	CATCHER	
104	3-912-885-01	SPRING (LOADING LEVER), TENSION	
* 105	3-912-892-01	LEVER (B), LOADING	
* 106	3-912-883-01	ARM, SUCTION	
107	3-922-941-01	LEVER (LOADING A)	
* 108	X-3370-516-1	LEVER (SV) ASSY, MODE	
109	3-927-100-11	SCREW (+PS 2X10), SPECIAL	
110	3-579-788-01	WASHER, STOPPER	
111	X-3368-266-1	PINCH LEVER (F) ASSY	
112	X-3368-267-1	PINCH LEVER (R) ASSY	
113	X-3370-824-1	BASE ASSY (HD2), HEAD	
114	3-912-879-01	SPRING, PINCH PRESS	
115	3-931-184-01	SCREW (HB2), STEP	
116	3-364-151-01	WASHER	
117	X-3368-841-1	CHASSIS (SV) ASSY (A), MECHANICAL	
118	3-701-437-21	WASHER	

Ref. No.	Part No.	Description	Remark
119	3-930-932-01	FLYWHEEL (F) (SEF)	
120	X-3371-303-1	CLUTCH (SEF) ASSY, FR	
121	3-912-896-01	BELT	
122	X-3368-843-1	GEAR ASSY, REEL	
123	3-917-222-01	SPRING (B-T), COIL	
124	3-917-324-01	WASHER (B-T)	
125	3-912-888-03	GEAR (LOADING E)	
126	3-321-813-01	WASHER, COTTER POLYETHYLENE	
127	3-912-889-01	GEAR (LOADING F)	
128	X-3368-842-1	BRACKET (SV) ASSY, REEL	
129	1-589-604-11	REEL SENSOR BOARD	
130	1-765-460-12	CORD (WITH CONNECTOR)	
131	3-916-358-01	LEVER (TAPE IN 2)	
* 132	3-917-258-01	PLATE, GROUND	
HP901	1-500-196-21	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3368-684-1	MOTOR ASSY, MAIN (CAPSTAN/REEL)	
M902	X-3368-685-1	MOTOR ASSY, SUB (LOADING/TAPE OPERATION)	
S901	1-692-885-11	SWITCH, ROTARY SLIDE (TAPE OPERATION)	

KEY

SECTION 8
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
		KEY BOARD			
		*********			
		< CAPACITOR >			
C901	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C902	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
		< CONNECTOR >			
CN901	1-764-423-11	PIN, CONNECTOR 12P			
		< DIODE >			
D901	8-719-977-00	DIODE	DTZ5.1C		
D902	8-719-977-12	DIODE	DTZ6.8B		
D903	8-719-977-12	DIODE	DTZ6.8B		
D904	8-719-977-12	DIODE	DTZ6.8B		
D905	8-719-977-12	DIODE	DTZ6.8B		
		< IC >			
IC901	8-759-330-60	IC	LC75822WD		
		< LIQUID CRYSTAL DISPLAY >			
LCD901	1-801-161-21	DISPLAY PANEL, LIQUID CRYSTAL			
		< SWITCH >			
LSW902	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(FM)
LSW903	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(AM)
LSW904	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(CD)
LSW909	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(-)
LSW910	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(SEL)
LSW911	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(+)
LSW921	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(⏏)
LSW922	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(TAPE ◀❚▶)
LSW923	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(PRESET -, DISC REW)
LSW924	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(PRESET +, DISC FF)
LSW925	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(SEEK +, AMS ⏭)
LSW926	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(SEEK -, AMS ⏮)
LSW927	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(6 BL.SKIP)
LSW928	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(5 ATA)
LSW929	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(4 MTL)
LSW930	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(1 INTRO)
LSW931	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(2 REPEAT)
LSW932	1-762-142-12	SWITCH, KEY BOARD (WITH LED)			(3 □□/SHUF)
		< PILOT LAMP >			
PL901	1-517-407-21	LAMP, PILOT			
PL902	1-517-407-21	LAMP, PILOT			
		< RESISTOR >			
R901	1-216-093-00	METAL CHIP	68K	5%	1/10W
R902	1-216-041-00	METAL CHIP	470	5%	1/10W
R903	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R904	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R905	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R906	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R911	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R912	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R913	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R914	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R915	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R916	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R917	1-208-445-41	METAL GLAZE	2.2K	2%	1/10W
R918	1-208-449-41	METAL GLAZE	3.3K	2%	1/10W
R919	1-208-453-41	METAL GLAZE	4.7K	2%	1/10W
R920	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R921	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R922	1-208-810-11	METAL GLAZE	15K	2%	1/10W
R923	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R924	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R925	1-216-647-11	METAL CHIP	680	0.5%	1/10W
R926	1-208-437-41	METAL GLAZE	1K	2%	1/10W
R927	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R928	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R929	1-208-445-41	METAL GLAZE	2.2K	2%	1/10W

Ref. No.	Part No.	Description			Remark
R930	1-208-449-41	METAL GLAZE	3.3K	2%	1/10W
R931	1-208-453-41	METAL GLAZE	4.7K	2%	1/10W
R932	1-216-671-11	METAL CHIP	6.8K	0.5%	1/10W
R933	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R940	1-216-025-00	METAL GLAZE	100	5%	1/10W
R941	1-216-025-00	METAL GLAZE	100	5%	1/10W
R942	1-216-033-00	METAL CHIP	220	5%	1/10W
R943	1-216-033-00	METAL CHIP	220	5%	1/10W
R944	1-216-025-00	METAL GLAZE	100	5%	1/10W
		< SWITCH >			
SW901	1-762-357-11	SWITCH (OFF)			
SW905	1-762-357-11	SWITCH (SENS/BTM)			
SW908	1-762-357-11	SWITCH (DSPL)			
SW912	1-762-357-11	SWITCH (LOUD)			
SW913	1-762-357-11	SWITCH (MUTE)			
**********					
*	A-3309-469-A	MAIN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C1	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C2	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C3	1-124-584-00	ELECT	100uF	20%	10V
C4	1-124-584-00	ELECT	100uF	20%	10V
C5	1-124-584-00	ELECT	100uF	20%	10V
C6	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C7	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C9	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C10	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C11	1-126-157-11	ELECT	10uF	20%	16V
C12	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C13	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C14	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C15	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C16	1-124-589-11	ELECT	47uF	20%	16V
C17	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C18	1-136-169-00	FILM	0.22uF	5%	50V
C19	1-137-368-11	FILM	0.0047uF	5%	50V
C20	1-216-295-00	CONDUCTOR, CHIP		(2012)	
C24	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V
C25	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C101	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C103	1-124-257-00	ELECT	2.2uF	20%	50V
C104	1-126-157-11	ELECT	10uF	20%	16V
C105	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C106	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C107	1-126-157-11	ELECT	10uF	20%	16V
C108	1-163-014-00	CERAMIC CHIP	0.0027uF	10%	50V

Ref. No.	Part No.	Description			Remark
C109	1-126-157-11	ELECT	10uF	20%	16V
C110	1-136-169-00	FILM	0.22uF	5%	50V
C111	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C112	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C113	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C116	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C117	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C118	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C119	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C120	1-126-157-11	ELECT	10uF	20%	16V
C151	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C152	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C153	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C161	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C162	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C163	1-124-584-00	ELECT	100uF	20%	10V
C164	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C165	1-124-234-00	ELECT	22uF	20%	16V
C166	1-163-205-00	CERAMIC CHIP	0.001uF	5%	50V
C201	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C203	1-124-257-00	ELECT	2.2uF	20%	50V
C204	1-126-157-11	ELECT	10uF	20%	16V
C205	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C206	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C207	1-126-157-11	ELECT	10uF	20%	16V
C208	1-163-014-00	CERAMIC CHIP	0.0027uF	10%	50V
C209	1-126-157-11	ELECT	10uF	20%	16V
C210	1-136-169-00	FILM	0.22uF	5%	50V
C211	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C212	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C213	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C216	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C217	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C218	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C219	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C220	1-126-157-11	ELECT	10uF	20%	16V
C302	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C303	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C304	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C305	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C306	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C307	1-126-163-11	ELECT	4.7uF	20%	50V
C308	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C351	1-124-234-00	ELECT	22uF	20%	16V
C352	1-124-584-00	ELECT	100uF	20%	10V
C353	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C354	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C355	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C356	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V

MAIN

Ref. No.	Part No.	Description			Remark
C361	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C362	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C363	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C364	1-126-157-11	ELECT	10uF	20%	16V
C365	1-124-234-00	ELECT	22uF	20%	16V
C366	1-124-120-11	ELECT	220uF	20%	25V
C402	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C403	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C404	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C405	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C406	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C407	1-126-163-11	ELECT	4.7uF	20%	50V
C408	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C501	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C502	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C503	1-126-301-11	ELECT	1uF	20%	50V
C504	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C505	1-124-589-11	ELECT	47uF	20%	16V
C506	1-124-257-00	ELECT	2.2uF	20%	50V
C507	1-164-346-11	CERAMIC CHIP	1uF		16V
C509	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C510	1-125-705-11	CAPACITOR	0.22F		5.5V
C511	1-124-584-00	ELECT	100uF	20%	10V
C512	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C514	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C515	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C517	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C601	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C602	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C603	1-126-157-11	ELECT	10uF	20%	16V
C604	1-124-234-00	ELECT	22uF	20%	16V
C605	1-126-096-11	ELECT	10uF	20%	35V
C606	1-124-589-11	ELECT	47uF	20%	16V
C607	1-124-589-11	ELECT	47uF	20%	16V
C608	1-126-157-11	ELECT	10uF	20%	16V
C609	1-126-936-11	ELECT	3300uF	20%	16V
C610	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C611	1-163-181-00	CERAMIC CHIP	100PF	5%	50V
C613	1-136-165-00	FILM	0.1uF	5%	50V
C701	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C702	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C703	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C704	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C705	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C998	1-124-234-00	ELECT	22uF	20%	16V
		< JACK >			
CN150	1-774-699-12	JACK, PIN 4P (LINE OUT, BUS AUDIO IN)			

Ref. No.	Part No.	Description	Remark
		< CONNECTOR >	
CN351	1-766-260-11	CONNECTOR, FFC/FPC (ZIF) 7P	
* CN352	1-506-995-11	PIN, CONNECTOR (PC BOARD) 13P	
CN601	1-774-701-11	PIN, CONNECTOR 16P	
CN602	1-764-422-11	PLUG, CONNECTOR 12P	
CN701	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)	
		< DISCHARGE GAP >	
CP1	1-519-504-11	GAP, DISCHARGE	
		< DIODE >	
D1	8-719-991-65	DIODE SB02W03C	
D2	8-719-010-34	DIODE UZ-4.7BSC	
D3	8-719-110-17	DIODE RD10ESB2	
D351	8-719-988-62	DIODE 1SS355	
D361	8-719-977-22	DIODE DTZ9.1	
D362	8-719-991-33	DIODE 1SS133T-77	
D501	8-719-988-62	DIODE 1SS355	
D502	8-719-988-62	DIODE 1SS355	
D503	8-719-988-62	DIODE 1SS355	
D504	8-719-988-62	DIODE 1SS355	
D505	8-719-977-22	DIODE DTZ9.1	
D507	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D508	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D509	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D510	8-719-109-97	DIODE RD6.8ES-B2	
D511	8-719-109-97	DIODE RD6.8ES-B2	
D512	8-719-923-93	DIODE MTZJ-T-77-16C	
D513	8-719-109-97	DIODE RD6.8ES-B2	
D514	8-719-109-97	DIODE RD6.8ES-B2	
D515	8-719-109-97	DIODE RD6.8ES-B2	
D516	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D519	8-719-991-33	DIODE 1SS133T-77	
D520	8-719-988-62	DIODE 1SS355	
D521	8-719-914-43	DIODE DAN202K	
D522	8-719-977-17	DIODE DTZ7.5C	
D523	8-719-976-88	DIODE DTZ3.9B	
D601	8-719-978-50	DIODE DTZ-TT11-10C	
D602	8-719-200-82	DIODE 11ES2	
D603	8-719-200-82	DIODE 11ES2	
D604	8-719-049-38	DIODE 1N5404TU	
D605	8-719-200-82	DIODE 11ES2	
D701	8-719-923-93	DIODE MTZJ-T-77-16C	
D702	8-719-105-99	DIODE RD6.2M-B1	
D703	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D704	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D705	8-719-056-83	DIODE UDZ-TE-17-6.8B	

Ref. No.	Part No.	Description	Remark
		< FUSE >	
F801	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) 15A	
		< IC >	
IC151	8-752-075-48	IC CXA1946AQ-T6	
IC152	8-759-909-71	IC BA4558F	
IC351	8-752-075-58	IC CXA2510Q-T4	
IC361	8-759-823-87	IC LB1638M	
IC501	8-759-421-98	IC uPD17708GC-527-3B9	
IC502	8-759-097-36	IC RH5VA40AA	
IC601	8-759-369-42	IC HA13153	
IC602	8-759-347-49	IC BA3918-V2	
IC701	8-759-096-16	IC MM1175XF-T1	
		< JACK >	
J1	1-764-808-14	JACK (ANTENNA)	
J501	1-566-822-41	JACK (REMOTE IN)	
		< JUMPER RESISTOR >	
JC1	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC2	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC4	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC5	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC6	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC7	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC8	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC9	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC10	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC11	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC12	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC13	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC14	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC15	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC17	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC18	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC21	1-216-295-00	CONDUCTOR, CHIP (2012)	
JC51	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC52	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC53	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC54	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC55	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC56	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC57	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC58	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC59	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC60	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC61	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC62	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC63	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC64	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC65	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC66	1-216-296-00	CONDUCTOR, CHIP (3216)	
JC67	1-216-296-00	CONDUCTOR, CHIP (3216)	
		< COIL >	
L501	1-410-971-11	INDUCTOR 10uH	
L601	1-411-669-12	COIL, CHOKE	
		< EARTH TERMINAL >	
* LUG1	1-537-738-21	TERMINAL, EARTH	
* LUG2	1-537-738-21	TERMINAL, EARTH	
* LUG3	1-537-738-21	TERMINAL, EARTH	
		< TRANSISTOR >	
Q2	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q4	8-729-021-94	TRANSISTOR 2SK1657-T1B	
Q6	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q101	8-729-920-21	TRANSISTOR DTC314TKH04	
Q102	8-729-920-21	TRANSISTOR DTC314TKH04	
Q201	8-729-920-21	TRANSISTOR DTC314TKH04	
Q202	8-729-920-21	TRANSISTOR DTC314TKH04	
Q361	8-729-921-48	TRANSISTOR 2SD1760F5-TRPQR	
Q362	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q363	8-729-900-53	TRANSISTOR DTC114EK	
Q364	8-729-106-60	TRANSISTOR 2SB1115A	
Q365	8-729-900-53	TRANSISTOR DTC114EK	
Q451	8-729-903-10	TRANSISTOR FMW1	
Q501	8-729-921-25	TRANSISTOR FMC2	
Q502	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q504	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q601	8-729-030-18	TRANSISTOR 2SD2525	
Q602	8-729-030-18	TRANSISTOR 2SD2525	
Q603	8-729-921-25	TRANSISTOR FMC2	
Q701	8-729-900-53	TRANSISTOR DTC114EK	
		< RESISTOR >	
R1	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R2	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R3	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R4	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R5	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R6	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R7	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R8	1-216-242-00	METAL GLAZE 68K 5% 1/8W	
R9	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R10	1-216-049-11	METAL GLAZE 1K 5% 1/10W	
R11	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	

MAIN

Ref. No.	Part No.	Description			Remark
R12	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R14	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R15	1-249-407-11	CARBON	150	5%	1/4W
R16	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W
R102	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R103	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R104	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-081-00	METAL CHIP	22K	5%	1/10W
R108	1-216-085-00	METAL CHIP	33K	5%	1/10W
R109	1-216-017-00	METAL GLAZE	47	5%	1/10W
R110	1-216-017-00	METAL GLAZE	47	5%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-081-00	METAL CHIP	22K	5%	1/10W
R116	1-216-081-00	METAL CHIP	22K	5%	1/10W
R117	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R118	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R119	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R120	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R151	1-216-073-00	METAL CHIP	10K	5%	1/10W
R152	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R161	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R162	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R202	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R203	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R205	1-216-073-00	METAL CHIP	10K	5%	1/10W
R206	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R207	1-216-081-00	METAL CHIP	22K	5%	1/10W
R208	1-216-085-00	METAL CHIP	33K	5%	1/10W
R209	1-216-017-00	METAL GLAZE	47	5%	1/10W
R210	1-216-017-00	METAL GLAZE	47	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R215	1-216-081-00	METAL CHIP	22K	5%	1/10W
R216	1-216-081-00	METAL CHIP	22K	5%	1/10W
R217	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R218	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
R219	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R220	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R301	1-216-109-00	METAL CHIP	330K	5%	1/10W
R302	1-216-109-00	METAL CHIP	330K	5%	1/10W
R304	1-216-109-00	METAL CHIP	330K	5%	1/10W
R305	1-216-076-00	METAL CHIP	13K	5%	1/10W
R306	1-216-079-00	METAL CHIP	18K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R307	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R308	1-208-518-41	METAL GLAZE	22K	2%	1/10W
R351	1-208-812-11	METAL GLAZE	18K	2%	1/10W
R352	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R353	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R354	1-216-077-00	METAL CHIP	15K	5%	1/10W
R355	1-216-073-00	METAL CHIP	10K	5%	1/10W
R356	1-216-073-00	METAL CHIP	10K	5%	1/10W
R358	1-216-073-00	METAL CHIP	10K	5%	1/10W
R359	1-216-109-00	METAL CHIP	330K	5%	1/10W
R360	1-247-791-00	CARBON	22	5%	1/4W
R361	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R362	1-249-389-11	CARBON	4.7	5%	1/4W
R363	1-249-389-11	CARBON	4.7	5%	1/4W
R364	1-216-073-00	METAL CHIP	10K	5%	1/10W
R365	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R401	1-216-109-00	METAL CHIP	330K	5%	1/10W
R402	1-216-109-00	METAL CHIP	330K	5%	1/10W
R404	1-216-109-00	METAL CHIP	330K	5%	1/10W
R405	1-216-076-00	METAL CHIP	13K	5%	1/10W
R406	1-216-079-00	METAL CHIP	18K	5%	1/10W
R407	1-208-462-41	METAL GLAZE	10K	2%	1/10W
R408	1-208-518-41	METAL GLAZE	22K	2%	1/10W
R451	1-216-025-00	METAL GLAZE	100	5%	1/10W
R452	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R453	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R501	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R506	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R508	1-216-073-00	METAL CHIP	10K	5%	1/10W
R509	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R511	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R512	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R513	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R514	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R515	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R516	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R517	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R518	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R519	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R520	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R521	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R522	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R523	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R524	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R525	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R526	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R527	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R530	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R531	1-216-097-00	METAL GLAZE	100K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R533	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R534	8-719-988-62	DIODE 1SS355			
R535	1-216-049-11	METAL GLAZE	1K	5%	1/10W
R536	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R537	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R538	1-216-017-00	METAL GLAZE	47	5%	1/10W
R539	1-216-073-00	METAL CHIP	10K	5%	1/10W
R543	1-216-025-00	METAL GLAZE	100	5%	1/10W
R544	1-216-025-00	METAL GLAZE	100	5%	1/10W
R545	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R546	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R547	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R548	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R549	1-216-073-00	METAL CHIP	10K	5%	1/10W
R550	1-208-806-11	METAL CHIP	10K	0.50%	1/10W
R551	1-216-174-00	METAL GLAZE	100	5%	1/8W
R552	1-216-174-00	METAL GLAZE	100	5%	1/8W
R553	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R554	1-216-073-00	METAL CHIP	10K	5%	1/10W
R555	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R556	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R557	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R558	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R559	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R560	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R561	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R562	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R563	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R565	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R566	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R568	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R569	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R571	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R572	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R601	1-249-385-11	CARBON	2.2	5%	1/6W
R602	1-249-385-11	CARBON	2.2	5%	1/6W
R603	1-216-037-00	METAL CHIP	330	5%	1/10W
R701	1-216-295-00	CONDUCTOR, CHIP		(2012)	
R702	1-216-017-00	METAL GLAZE	47	5%	1/10W
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W
R704	1-216-025-00	METAL GLAZE	100	5%	1/10W
R705	1-216-174-00	METAL GLAZE	100	5%	1/8W
R706	1-216-246-00	METAL GLAZE	100K	5%	1/8W

< VARIABLE RESISTOR >

RV301	1-238-597-11	RES, ADJ, CARBON 1K
RV401	1-238-597-11	RES, ADJ, CARBON 1K

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S501	1-571-478-11	SWITCH, SLIDE (POWER SELECT)	
S503	1-692-431-21	SWITCH, TACTILE (RESET)	
		< TUNER >	
TU1	A-3282-012-A	TUNER UNIT (TUX-006(E))	
		< VIBRATOR >	
X501	1-578-785-11	VIBRATOR, CRYSTAL (4.5MHz)	

****

MISCELLANEOUS

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10	1-776-207-31	CORD (WITH CONNECTOR)	
130	1-765-460-12	CORD (WITH CONNECTOR)	
F801	1-533-331-11	FUSE (BLADE TYPE) (AUTO FUSE) 15A	
HP901	1-500-196-21	HEAD, MAGNETIC (PLAYBACK)	
M901	X-3368-684-1	MOTOR ASSY, MAIN (CAPSTAN/REEL)	
M902	X-3368-685-1	MOTOR ASSY, SUB (LOADING/TAPE OPERATION)	
S901	1-692-885-11	SWITCH, ROTARY SLIDE (TAPE OPERATION)	

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ACCESSORIES & PACKING MATERIALS

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	3-856-354-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-856-355-11	MANUAL, INSTRUCTION, INSTALL	(ENGLISH, FRENCH)
	X-3367-795-1	CASE ASSY	

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HARDWARE LIST

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#1	7-621-770-67	SCREW +PTT 2.6X6 (S)	
#2	7-621-770-XX	SCREW +PTT 2.6X8 (S)	
#3	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	
#4	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3	
#5	7-628-253-00	SCREW +PS 2X4	
#6	7-624-104-04	STOP RING 2.0, TYPE -E	
#7	7-621-772-10	SCREW +B 2X4	

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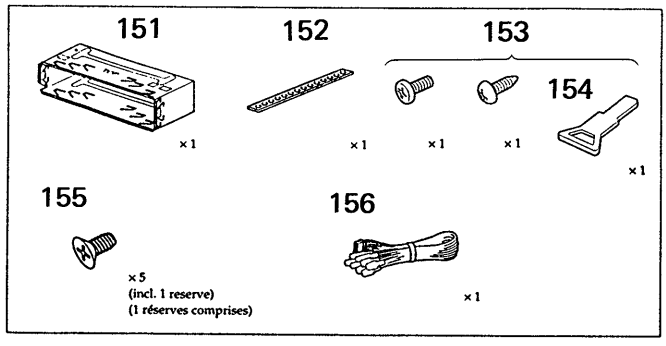
Ref. No.	Part No.	Description	Remark
		PARTS FOR INSTALLATION AND CONNECTIONS	
		**********	
* 151	3-937-712-02	FRAME	
152	3-914-406-01	SUPPORT (ND), FITTING	
153	X-3370-076-1	SCREW ASSY (U.KEY), FITTING	
154	3-388-078-01	KEY	
155	X-3371-913-1	SCREW ASSY (J)	
156	1-776-207-31	CORD (WITH CONNECTOR)	



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